THE
Practical Bee-Maſter:
OR, A
TREATISE,

Wherein the Management of BEES, both in common Hives, and in the Colony Way, without killing them for their Honey, is, Step by Step and on all probable Occurrences, better and more particularly directed, than in any Book hitherto publiſhed.

By ROBERT MAXWELL of *Arkland*, a Member of, and Secretary to, the Honourable, the Society of Improvers in the Knowledge of AGRICULTURE in *Scotland*.

Protinus aërii Mellis cœleſtia Dona
Exſequar: hanc etiam, Mæcenas, aſpice partem.
Admiranda tibi levium ſpectacula rerum,
Magnanimoſque Duces, totiuſque ex ordine gentis
Mores, & ſtudia, & Populos, & prœlia dicam. Virg.

EDINBURGH,
Printed by ROBERT DRUMMOND, and Sold by the Bookſellers in *Edinburgh*, and other Towns; and at Mrs. MAXWELL's Shop, betwixt *James*'s and *Wardrop*'s Courts, in the *Lawn-Market* of *Edinburgh*, where the Author may be found, or Letters to him may be directed. MDCCXLVII.

This Book is entred in STATIONERS HALL; and further, to prevent Pyrating, I have ſigned each genuine Copy, on the Back of the Title Page.

UNTO THE RIGHT HONOURABLE,

JOHN Earl of STAIR,

Viſcount DALRYMPLE, Lord *Newliſton*, *Glenluce* and *Stranraer*; Field-Marſhal of His Majeſty's Forces, General of Marines, Governor of the Iſland of *Minorca*, Colonel of His Majeſty's Royal Regiment of *North Britiſh* Dragoons, one of His Majeſty's moſt Honourable Privy Council, and Knight of the moſt ancient *Order of the* THISTLE, *&c. &c.*

My LORD,

IF none excepted againſt Books, but ſuch as could amend them, ſuch Cenſure would be commendable; but many cavil only to gratify their captious Humours; hence it is, that Writers dedicate their Books to the Great for Protection,

tection, and that the Rays of their Patron's Glory may communicate Light to their Labours; ſo I moſt humbly addreſs You, my Lord, YOU who have gained *Great Britain* as much Honour by your wiſe Negotiations, as any Ambaſſador ever did before, or has done ſince you were ſo employed; YOU who have evidenced that You are both a conſummate Stateſman and General, equally well qualified for the Council and Camp; YOU whoſe Name and Memory will be ſacred in all future Records, for Valour, Wiſdom and Succeſs: But, which is ſtill more Honourable, if any Thing can be more Honourable than theſe; upon YOU, who have proved, that You're a Lover of Husbandry, and a Notable Husband-Man, which makes YOU the more natural Patron of this my Treatiſe.

THE Policy of States is generally to enlarge their Territories; Wars are always attended with the Deſtruction of Numbers of People, and many other Calamities; but Improvements in Husbandry are more profitable for *Great Britain* than Conqueſts. Husbandry is the Life and Support of the whole People, from the King to the Beggar. *The Profit of the Earth is for all, the King himſelf is ſerved by the Field:* Husbandry is alſo the Life and Support of all Arts and Sciences: Our Manufactures and Trade depend upon it, and ſubſiſt by it: They can only flouriſh in Proportion as it ſucceeds: It furniſhes the Materials for both: It is the Stock, and they are only the Improvements

ments of it. The Practice of it procures a robuſt Conſtitution of Body, which enables Men to perform great Actions; it encreaſes the Strength of the Labourers, and renders thoſe who work at the Plough, robuſt and hardy, by inuring them to the Inclemencies of the Seaſons, the Colds of Winter, and the Heats of Summer, and by obliging them to riſe early, and to keep themſelves always employed.

If at any Time our Country ſhould be invaded, they, more than other Men, are excited to defend it: For, when other Things may be hid, their Corn and their Cattle muſt remain expoſed in the Fields, to be carried off, or deſtroyed by the Invaders; and as they will be more forward, they will alſo be more able, than any other Set of Men, to do it, and, by their own Strength and Courage, to take Revenge: So Husbandry ought to be held in great Eſteem by all Governments: It furniſhes them with the beſt Subjects, and ſuch as are moſt ſtudious of the publick Good; for which Reaſons there is no Art, no Science, ſo honourable, ſo uſeful as Husbandry.

YOUR Lordſhip has indeed learned the Principles of it, by the ſuperior Strength of Your own Underſtanding, tho' You could find no Univerſity in which it is taught; but ſurely 'tis for Want of Teachers, that the Generality of Farmers are ſo ſhamefully, ſo miſerably Ignorant of this their Buſineſs, the chief of all earthly Concerns. May we not therefore complain with *Columella*, and o-

thers

thers ſince, that all other Arts and Sciences, even ſuch Vanities as Dancing, have publick Schools and Maſters, and yet that we ſhould have no Profeſſor of ſo Pleaſant, ſo Virtuous, ſo Honourable, and ſo Neceſſary an Art as Agriculture. He cried out, 'O Husbandry, thou that art ſo nearly related to 'Wiſdom, thou alone has neither Maſters nor Scho-'lars!' May not we do ſo too, ſince the Caſe in his Time and ours is the ſame? How then could a great Man do a greater publick Good, or add any greater Glory to his Character, than by promoting the Eſtabliſhment of an Univerſity of Husbandry, or of a general Director, or Directors of Agriculture?

YOUR Lordſhip's Knowledge is not loſt, but highly uſeful to Society. You teach us daily by Your Noble Example, and, beſides what otherways drops from Your Bountiful Hand, You relieve the Poor by employing them at your Works. If every great Man beſtowed his Money as You do, the giving them Places with great Sums would be a publick Advantage, and the more they got, if it was not highly exceſſive, the Kingdom would be the more benefited.

TO particularize only your Husbandry Works, by which You have taught us, and are ſtill teaching us, better Methods than we know, or knew before, even thoſe hinted at in my DEDICATION of the ſelect Tranſactions of the Society of Improvers, would ſwell this Letter to an uncommon Length, wherefore I will endeavour to hold my Hand, tho' the

the Force of Truth and Juſtice to Your Lordſhip's Merit are puſhing me on.

I have tried to reſtrain myſelf, but I find I cannot, until I obſerve from what I have ſaid, that You are ſurely a moſt happy Man, my Lord, for You have won the Bleſſings of the Poor, have commanded the Eſteem of all Ranks, and have even laid the whole Kingdom under a Load of Obligations to You, by Your glorious Conduct on all Occaſions. When Men have a Mind to glory, why do they not ſeek it in applying their Minds, as your Lordſhip has done, to do good?

IT is impoſſible, my Lord, I can have given Cauſe to accuſe me of Flattery, all I have ſaid being ſtrictly true. On the contrary, I ought to have ſaid more, ſince I adventured to ſay any Thing; for who won't ſee, that I leave untouched the moſt ſhining Parts of Your Character; PARTS for which every *Briton*, who loves his Country, will in Ages to come, pay Honour to Your Memory. As an Apology for this Neglect, I plead, firſt, my Fear of offending Your Modeſty; next, my Inability to deſcribe them properly. If I touched them, my Fingers might ſully their Luſtre, for he who praiſes amiſs, leſſens whom he would commend: Leſt I ſhould fall under that Cenſure, I am obliged to draw a Veil over what I have deſpaired of being able to repreſent. But,

UPON the whole of Your Conduct, without going further into Particulars, I muſt ſtill obſerve, that it is by all acknowledged, that you have walked ſteadily in the Paths of Virtue, the cardinal Virtues, thro' all the Stages of Your Life, wherefore we honour and eſteem You as much as we can. I beg Your Patronage, and pardon for preſuming to take this publick Occaſion to ſubſcribe myſelf,

MY LORD,

Your Lordſhip's,

Moſt obedient,

And moſt humble Servant,

ROB. MAXWELL.

THE

TO THE READER.

THO' I intended, by the Introduction, to have ſaved you the Trouble of a Preface; yet, I think, it may not be improper to offer you this. Pray, allow me to ſhew you a Reaſon, why a Book deſerving the Title of, The PRACTICAL BEE-MASTER, *was exceedingly wanted; for to palm uſeleſs Books upon the Publick, is a Crime of a very heinous Nature, a Robbery of every Purchaſer. The Reaſon is ſhort. There was no Book, that I could ſee or hear of which deſerves the Name; none of them directing the Huſbandry of Bees, in many difficult Caſes which often occur.*

To help me to make this appear, I ſhall uſe the Words of the Author of the Natural Hiſtory of Bees. *Surely he ought not to complain, that I take from him, and uſe his Words, ſince he ſays,* " *I have* " *taken* ALL *the Materials from M.* De Reaumur," *the Author of Nature diſplayed; and adds,* " *I* " *have preſerved as far as poſſible his Terms and* " *Expreſſions.*

" The practical Reaſons, *ſays he,* for the Suc-" ceſs of Bees are nothing more than the Know-" ledge of their Wants; and theſe Wants cannot " be known, if one is not acquainted, with the ut-" moſt Exactneſs, of their Method of living, their " Temperature, their Nouriſhment, the Dangers to " which they are expoſed, the moſt favourable Si-' tuation they can be placed in; if one knows not ' how to make them change their Habitation, *&c.*

"The Ancients have loaded their Hiſtory of Bees "with ſo many Fables and Abſurdities, that it is "not at all ſtrange, if the Prejudices, which ariſe "from theſe falſe Repreſentations, have retarded "the Progreſs, which might otherwiſe have been "made, on the training up of Bees.

"To inforce this profitable Art, and to render "it capable of the higheſt Perfection; it was ne-"ceſſary, that ſomebody ſhould give himſelf the "Trouble, to make Bees his Study more than the "Ancients had done. This has been effected in "our Time; and we are indebted to three cele-"brated Authors. *Swammerdam* is the firſt, who "applied himſelf, with all that Knowledge, of "which ſo great an Anatomiſt was capable: But his "Studies and Diſcoveries go not far beyond the in-"terior and exterior Parts of theſe Animals; their "Generation and their Food: His Deſign not ex-"tending to what might be uſeful either to preſerve "or multiply them. In ſhort, his Work, wrote "in *Latin* and *Dutch*, is of no Service to the "Perſons we have in View. The late M. *Ma-"raldy*, like the Gods of the Poets, who ſome-"times quit Heaven to amuſe themſelves with ter-"reſtrial Creatures; M. *Maraldy*, I ſay, diverted "himſelf, amidſt his Aſtronomical Obſervations, "with the Study of Bees. This Author has left "us a very minute Hiſtory of Bees, accompanied "with many Obſervations and Diſcoveries. It is "to be found in the Memoirs of the Academy, "and conſequently beyond the Capacity of thoſe "Perſons, who have the moſt need of it. Be-"ſides, this Author, as well as *Swammerdam*, "gives no Rules for the training up of Bees. "They are both ſatisfied to examine them as Na-"turaliſts. At length M. *De Reaumur* uniting

the

" the Diſcoveries of all his Predeceſſors to his own, " has lately obliged us with a new Hiſtory of theſe " Animals; which one may conſider as the moſt " compleat and perfect Work, in all Reſpects, " that can be hoped for of this Kind; as well with " regard to the *Natural Hiſtory of Bees*, as to the " new and eaſy Methods, there propoſed, for " their Increaſe and Improvement. This Tract " is found in the 5th Volume of his *Memoirs in-* " *tended for the Hiſtory of Inſects*; a Work, " which for the Price, Bulk, and extenſive Learn- " ing, ſeems only fitted to the Capacities of the " Learned and Curious.

" Thus the Deſtiny of Bees has this in particu- " lar, that all thoſe, who have moſt ſucceſsfully " intereſted themſelves for them, who have beſt " known them, and who have treated of them the " moſt learnedly, and with the greateſt Exactneſs, " have not wrote but for ſuch, who have it not in " their Power to profit by their Diſcoveries, and " Lectures, and have no real Relation to Bees: " Whilſt thoſe who breed them, and who might " make their Advantage of them by enlarging " Commerce, have ſcarce any Knowledge of " them.

" This Reflection has given me the Notion of " making thoſe Diſcoveries and Improvements " more general, which ſeem locked up in the Ca- " binets of the Learned; and to place before the " Eyes of all thoſe who have any Deſire, or any " Intereſt to be acquainted with them, the moſt " proper Means to bring up theſe Animals, and " to enlarge the Commerce of Wax.

" 'Tis with this View, and for theſe Perſons " only, that I have attempted this Hiſtory of " Bees, I have taken all the Materials from the

" Memoirs

" Memoirs of M. *De Reaumur*. One will be eaſily perſwaded, that I could not draw from a " purer, or a more copious Source.

" As my only Aim was to make myſelf uſeful, " I have made no Scruple to make uſe of the Obſervations, Remarks, Experiments and Diſcoveries, which have already been made upon Bees " by others; and have likewiſe employed their " Deſcriptions, ſuch as I found them, either entire " or abridged, and ſometimes by enlarging them, " when I was certain of not exceeding the Bounds " of Truth. To what M. *De Reaumur* has ſaid, " in his Memoir concerning Bees, I have added " every Thing which had Relation to that Subject, " which is found in his other Memoirs. I have preſerved, as far as poſſible, his Terms and Expreſſions, being perſwaded, that when Things are " well expreſſed, an attempt to expreſs them o-" therwiſe, is almoſt an inevitable Riſk to expreſs " them ill. If my Conduct, in this Particular, " had need of an Example to authorize it, I could " cite that of M. *Rollin* in his ancient *Greek* and " *Roman* Hiſtory."

You ſee the Author of the Natural Hiſtory *has told us, that the Ancients had loaded their Hiſtory of Bees with many Fables, Abſurdities, and falſe Repreſentations, and that no* French *Author, not even M.* De Reaumur *in his Hiſtory of theſe Animals*, "Tho' he had united all the Diſcoveries of his " Predeceſſors to his own, had wrote but for ſuch, " who have it not in their Power to profit by " their Diſcoveries and Lectures, and have no " real Relation to Bees, whilſt thoſe who breed " them, and might make their Advantage of them " by enlarging Commerce, have ſcarce any Know-" ledge of them." *Now*,

How

How could this Author of the Natural Hiſtory, *make his Book more uſeful than M.* De Reaumur's *ſince he has acknowledged, that he took* "All the Ma- "terials from his Memoirs;" *and ſince you obſerve, that he does not ſo much as pretend, that he himſelf has made the leaſt Diſcovery?*

I will add, that he has neglected to direct the Bee-Farmer, how to conduct himſelf in Multitudes of difficult Caſes, which often occur, and ſtuffed his Book with extraneous and extravagant Matters, as thoſe who read my Book, and particularly the Appendix, will, I believe, be fully ſatisfied.

Where, then, was a Book to be found, that could direct the Bee-Farmer on many probable Occurrences? Not in France; *and, I believe, I may paſs over all that has been wrote upon the Subject in* England, *except Dr.* WARDER's *Book. In my Opinion it was the moſt uſeful of any; and yet, as I have obſerved while treating the Subject, and will be farther obſerved, by ſuch as have read his Book, and ſhall read mine; his is in many Caſes deficient, and in ſome erroneous.*

If the Matter ſtood thus; if there was no Book, to direct the Bee-Farmer in a great many difficult Caſes, which often occur, and in which, I hope, I have now taught him, how to conduct the Huſbandry properly; and, if I have, more fully than any other, "Placed before the Eyes of all thoſe, who have "any Deſire or Intereſt, to be acquainted with "Bees, the moſt proper Means to bring up theſe "Animals, and to enlarge the Commerce of Wax," *as the Author of the* Natural Hiſtory *has ſaid, but, I humbly think, has not ſupported or made out; Then, may not I, without Arrogance, plead that I had a Right to give the Title of The* PRACTICAL BEE-MASTER *to my little Book.*

If

If any Body ſhall be of Opinion, that I have here, or any where, ſpoke more favourably of my Performance, than Modeſty allows, I beg Leave to put him in Mind that Plutarch, *having wrote a whole Chapter of his Morals, upon the Queſtion,* "How a Man may inoffenſively praiſe himſelf "without being liable to Envy?" *In diſcuſſing of it, ſays,* "Yet, however, there is a Time when "a generous and prudent Man may be the Subject "of his own Diſcourſe, and give a free Relation "of Things he has worthily done or ſaid, as well "as other Truths." *This Time is the more proper for me to make theſe Obſervations, that ſome of the Sheets having been ſeen before the reſt were printed, a frivolous and uſeleſs Exception has, already, been publickly made againſt my Book: What it was, and the Remarks I have made upon it, you will find in the Appendix, to which that Exception gave Occaſion.*

I conclude with an Acknowledgment, that two or three Gentlemen, whoſe Names, if I had Allowance, I would mention, aſſiſted when I reviſed my Manuſcript. I have gathered from the Living and from the Dead, as all Writers, whatever ſome may pretend, have done, or ſhould have done; and, like the Bees I have treated of, I have ſucked, for you, from every Flower, I thought for my Purpoſe. In particular, I have been aſſiſted by a ſmall Manuſcript, which was put into my Hand by the ingenious Mr. Hope *of* Rankeiler, *and by another Copy of the ſame Treatiſe, with ſome few Additions, from another Perſon. Since I have taken the Freedom to mention Mr.* Hope, *I cannot in Juſtice omit to ſay, that his Name ſhould be tranſmitted to Poſterity, for the Love he has ſhewn to his Country, by greatly promoting Improvements in Huſbandry*

and

and Manufactures. You ſee I am far from alledging all is new, or all is my own, yet I only do myſelf Juſtice in ſaying, that I have been attentive, laborious, and made all the Diſcoveries I could, and no doubt but, being little more than a Beginner at the Writing Buſineſs, I have, as a Poet ſays, been obliged to

Blot out, correct, inſert, refine,
Enlarge, diminiſh, interline.

But I think all my Pains well beſtowed, ſince now I can promiſe you, that you'll find in this Book, tho' ſmall, many neceſſary Directions, which I do not remember to have ſeen in any other.

ADVERTISEMENTS.

MR. *Maxwell* has been employed by Noblemen and Gentlemen, to ſurvey and plot their Eſtates, or Parts thereof, and to give his Opinion concerning the Improvement of the ſeveral Soils; and, whereas the Memorials he has wrote, and every other Thing he has done on theſe, or any of theſe Occaſions has, ſo far as he knows, given full Satisfaction to his Employers; theſe are to give Notice, that he is reſolved to ſerve, when called upon for any of theſe Purpoſes; and that he may be heard of at any of the Coffee-Houſes in *Edinburgh*, but more probably found at Mrs. *Maxwell*'s Shop, betwixt *James*'s and *Wardrop*'s Courts in the North-ſide of the Lawn-Market of *Edinburgh*; and alſo, that Letters left for him at the ſaid Shop, will go to his Hand, tho' he happen to be out of Town, and will be duly anſwered, Poſtages being paid.

It being known, that Mr. *Maxwell* is acquainted with many of the beſt Improvers in the Knowledge and Practice of Agriculture in *Scotland*, he is often applied to by

by Gentlemen, to find them out Tenants or skilled labouring Servants, and by Farmers to let them know, where improveable Farms are to be ſet; therefore, that he may be the better enabled to ſerve thoſe ſeverally, he will very willingly receive from Gentlemen, Memorials concerning ſuch Farms, and the Qualifications which they want Servants to have; and Accounts from Tenants of the Farms they incline to have, and alſo from Servants a Note of the Service they are qualified for; the Recommendation they can bring, and the Encouragement they expect.

The firſt Edition of the ſelect Tranſactions of the Honourable the Society of Improvers in the Knowledge of Agriculture in *Scotland*, publiſhed by Mr. *Maxwell*, being near ſold off, a ſecond Edition thereof, enlarged, will ſoon be publiſhed, and Sold at Mr. *Crawford* Bookſeller, his Shop in the *Parliament-Cloſe*, and at Mrs. *Maxwell*'s Shop before mentioned, at Two Shillings each Copy, cheaper than the firſt Edition ſold, *viz.* at Four Shillings ſtitched, and Five Shillings bound in Calf and titled; and if Mr. *Maxwell* meet with equal Encouragement by the Sale of this Treatiſe, as he got by the ſaid ſelect Tranſactions, for which he returns every Purchaſer his moſt hearty Thanks; he purpoſes at no very diſtant Time, to offer another Tract upon the Subject of Huſbandry: So if Gentlemen will be pleaſed, to give their helping Hands to the Service of their Country in that Way, by ſending him Memorials; if he ſhall find it proper to publiſh them, all poſſible Juſtice and Honour ſhall be done to ſuch Gentlemen, but their Names ſhall not be mentioned if they diſcharge it.

THE

THE PRACTICAL BEE-MASTER, &c.

HUSBANDRY conſiſts of many Parts, the more profitable the more they are conjoined, the more they are made to aſſiſt one another: All of them require Knowledge and Care in the Management, but ſome of them more Labour and Expence than others, and ſome leſs; of the laſt Sort is the Husbandry of Bees: None of them can be ſo generally, and on ſo ſmall a Stock, ſo profitably followed as this. For,

2. Every Man or Woman, who has only a Houſe and a Yeard, and Money to buy one ſingle Hive, who knows how to manage theſe laborious and profitable Creatures, and who will adhibite due Care, may, after a few Years, raiſe a conſiderable Sum yearly out of this very Article alone; and may, nevertheleſs, carry on other Buſineſs, without any conſiderable Interruption by the Bee Husbandry.

3. The Hiſtory and Husbandry of Bees is one of the moſt curious and entertaining Subjects, and has employed the Pens of the ableſt Writers in different Kingdoms and in different Ages; but had theſe Writers omitted many unneceſſary Speculations, and only, leſs intent on Theory, offered more and better practical Rules for the Management of theſe highly beneficial Creatures in all probable Occurrences, it cannot be doubted, but that

the Bee-Husbandry would have been more general, and more profitable to thoſe who practiſe it; That Honey the *Sugar of the Ancients* would, ere now, have ſupplied many of our Uſes of Sugar; Mead, or *Britiſh* Canary, of *French* and *Spaniſh* Wines; and that we might have had ſufficient Quantities of Wax, not only for Home-conſumpt, but likewiſe for Export: To prevent theſe Inconveniencies on the one Hand, and to obtain thoſe Advantages on the other, is the Deſign of publiſhing this Treatiſe.

4. Bees are of three diſtinct Species or Kinds. The *Sovereign-Bee*, the *Working-Bees*, and *Drones*: Of *Sovereigns* there is only one permitted to remain in every Hive, except young ones, until Swarming, for Sovereigns to other Hives; on this Sovereign the Good of the whole Family or Society depends, for, if removed, or killed, the whole Hive goes to Ruin: Tho' 'tis a Matter of ſmall, if any Conſequence, whether this Sovereign is Male or Female, *King*, or *Queen*, yet as poſſibly it may divert my Reader, I ſhall give my Sentiments about it, and my Reaſons.

5. Dr. WARDER pretends to have diſſected *Bees*, and, by the Help of his Glaſſes, to have diſcovered their Organs of Generation, whereby he ſays, he found the Sovereign Bee to be a Female, all the *Working-Bees* to be her Female Subjects, and the *Drones* to be the Male Bees; and hence it is, that, according to his Notion, the Sovereign being a Female, and all the *Working-Bees* her Female Subjects, carrying Arms for the Defence of their *Queen*, and her Government, he calls it the *Amazonian* Government; the *Drones*, called by him the Males, having no Sting.

6. The Doctor found a Conveniency in maintaining that this Sovereign was a Female: He dedicated his Book to the Queen, and told Her, *The Queen-Bee governs with Clemency and Sweetneſs, ſo doth your Majeſty, ſhe is obeyed and defended, out of Choice and Inclination by her Subjects, ſo is your Majeſty, for all the thouſands of your* Brittannick Iſrael *Eſteem your Majeſty's Perſon as ſacred,*

ſacred, and ſcarce ſuch a Villain is among us, who would not loſe his Life in Defence of your Majeſty: You ſee, he has made a proper Uſe of his *Queen-Bee*, and taken her Aſſiſtance to make out theſe fine Compliments.

7. The greateſt Part of the Writers on this Subject, having been of the Opinion, That the Sovereign was a Male, and that it is by Virtue of this King, that the Working-Bees, who are Females, are impregnate; the Doctor makes merry, and ſays, *'Tis too mean an Office for him to be the common Bull of the Herd.*

8. I won't poſitively contradict what the Doctor pretends to have ſeen, ſince I have not diſſected theſe Animals, as he has done; yet I cannot help being of the Opinion, That, as I have ſaid, was generally received before the Doctor wrote, until I ſee with my own Eyes, Cauſe for altering my Sentiments, or find the Reaſons I offer, againſt what he ſays, ſatisfyingly anſwered: They are,

9. 1*ſt.* Government by a King ſeems to be the moſt natural Kind of it.

10. 2*d.* This Bee by Bulk and Strength ſeems to be a Male, for every Body who has ſeen him engaged in Battle againſt ſtranger Bees, will have obſerved him kill a great many of them.

11. 3*d.* What the *Doctor* ridicules, ſeems to have more Weight than he is aware of, and perhaps is the principal Cauſe why they bear ſo true Allegiance to him, and hazard their Lives ſo freely in his Defence; for, in my Opinion, 'tis natural to think, that the Inſtinct thoſe Creatures are endowed with, of being ſolicitous to preſerve their Sovereign, more probably proceeds from his being the common Father, than becauſe he is the common Defender of the Society.

12. I ſuppoſe none will deny, but natural Children are more engaged in Affection to their Parents, than Political Children are to theirs, and it is, perhaps, becauſe this Sovereign is both Natural and Political Father, that their Love to him is ſo great.

13. If it be objected, that it is not eaſily to be imagined,

ed, how this Sovereign can be a Natural Father to ſo many. I anſwer, That any Body who has thought of the Propagation of Inſects, will not think this ſtrange: For Example, Let us but conſider the Silk-Worms, after they have taken on the Form of Butterflies, what a Multitude of Eggs will be laid in one Day by one Female, all impregnate by one Male; But,

14. 4*th*. The *Doctor* by ſuppoſing the Drones to be Male, brings himſelf under this Inconveniency, of aſſerting that the Females are all impregnate, ſeven or eight Months before they lay their Eggs; for I believe, all know that the Drones do not ſurvive the Month of *Auguſt* or *September*.

15. 5*th*. The *Doctor* ſays, when giving his Judgment about killing the Drones, That this is not to be done, till the Working-Bees begin to do it themſelves, and alledges, That you may as well kill all the Rams of your Flock, and look for Lambs from your Ewes, as you can expect that Hive of Bees to thrive next Summer, the Drones whereof you have killed this; but, I beg the *Doctor*'s Leave to tell my Readers, That a curious and ingenuous Bee-Maſter informs me, that, for a Trial of this, he has begun early in the Month of *June* to kill the Drones of an Hive, and has continued ſo to do, from Day to Day, until he could find no more to kill; and that he was very poſitive, that few, if any, eſcaped his Knife, and that yet, that Hive was as forward and thriving next Spring as any other, whence it may be concluded, that another Father, than the Drones, muſt be found out, for the next Year's Brood.

16. 6*th*. The laſt Argument, which I advance to prove this Sovereign to be a Male, is, That when an Hive loſes this Bee, they never increaſe any more, but daily diminiſh till they dwindle to nothing. I know it will be objected, that this does not prove the Alledgeance, becauſe, according to Dr. WARDER, an Hive or Swarm of Bees, do nothing at all after they loſe, or are robbed of their Sovereign.

17. To which I anſwer, That the *Doctor* is there ſpeak-

ſpeaking of a new Hive, about which he has made very conſiderable Diſcoveries, as ſhall be taken Notice of afterwards, but an old Hive and a young one differ: Whatever Diſorder or Diſcontent an old Hive may ſhew, yet they do not take it ſo much to Heart as a new Swarm does, but will continue as long as they live, to carry in Honey to their Hives, tho' they never work upon their Thighs, knowing it is fruitleſs to make any Attempt for Propagation, when the common Parent is gone.

18. Thus I have known them all gradually die away, and yet leave a conſiderable Deal of Honey, which accounts for Bees their forſaking their Hives, without being any Way diſobliged, ſo far as can be underſtood, and yet leaving Plenty of Proviſion behind them, which frequently happens, ſo I muſt be allowed to call their Sovereign a King, until theſe Objections are anſwered.

19. But, if it be enquired what is the Uſe of theſe Drones, and how are they propagated? I anſwer, That, their Uſe ſeems to remain ſtill a Secret, but I make no Queſtion that they have Male and Female among themſelves: Nature has, no doubt, made them for ſome Uſe, and yet I could never find any Man who could ſatisfy me what it was: Some alledge that they aſſiſt in hatching the young ones, for being bulky, and ſometimes very numerous, their Warmth does not a little contribute to the cheriſhing of the Brood; but how anſwer they this Objection, *viz*, What Way is the Hatching of the Young performed in *April*, when the Weather is cold, many of the Bees dead in Winter, and not a Drone to be ſeen in the whole Hive?

20. I thought to have left this Argument, in my Opinion more amuſing than uſeful, with this further Obſervation on Dr. WARDER's Opinion, that even he himſelf, ſpeaking of the Drone, is obliged to confeſs, That it is only moſt probable, that he is of the Male Kind, and that his being ſubject to the other Bees, is an Argument againſt him: Now, if the Drone is not the Male-Bee, then there is none, according to his Doctrine; but the natural Hiſtory of Bees, as tranſlated from the *French*, and

and the Female Monarchy by the Rev. Mr. *Thorley*, both publiſhed in the Year 1744, falling into my Hands; theſe I cannot paſs over without Remarks on what they ſay, concerning the Sex of Bees.

21. In the Natural Hiſtory mentioned, a Dialogue betwixt *Eugenio* and *Clariſſa*; *Eugenio*, ſays he, opened the Sovereign Bee anatomically, and aſſiſted *Clariſſa* by his Glaſs, to ſee that ſhe, the Sovereign Bee, is the fruitful Mother, that the Drones are the Males, and that the Working-Bees are of no Sex: Dr. WARDER ſays they are Females: What ſhall we believe?

22. The Clergyman gives us the Opinion of many Authors, as to the Sex of Bees, and their Manner of Procreation, and makes ſuch Obſervations on them ſeverally, as he thinks may beſt ſuit his Purpoſe; thereafter, *From the Premiſſes*, ſays he, *may we not juſtly draw this Concluſion, That the Drones are not the Males, neither have they any Inſtrumentality, or Agency in the Generation of Bees?* So far, you may remember, I agree with him, with Reſpect to the Production of the Working Bees, tho' I doubt not but that, as I have ſaid, there are both Male and Female Drones, and that they breed by Copulation with one another.

23. *If this Point*, ſays he, *is yielded to, then*, he ſays further, *I am moſt fully perſwaded that they do not breed by Copulation, the common Bees being neither Males nor Females, and the Sovereign being Female, and the only Female.*

24. I deſire you may remark what he comes to at laſt: *After all that has been offered on this Head*, ſays he, *it ſeems to be a mute Point that will admit of a further Diſpute; as I cannot attain to a full Satisfaction therein myſelf, How can I expect that my Arguments ſhould adminiſter the ſame to my Reader, whom I muſt leave to his own Judgment and Choice?*

25. Now, after ſuch a Conceſſion, What can we think he aimed at? Does the *Clergyman* doubt, that all living Creatures were created Male and Female? Does he doubt, that the Males and Females of all living Creatures

tures were preſerved in the Ark? If they were, I wiſh he had told us what has deſtroyed all the Male Bees ſince; but, ſtrange! Would he have us to believe, that a Female Bee can carry on the Work of Generation, any other Way, than by the Aſſiſtance and Co-operation of the Male.

26. I ſhall next give you a more particular, tho' ſhort, Deſcription of every particular Species of them, becauſe this Treatiſe may fall into Hands who have not, or want Money, to purchaſe Books, that deſcribe them.

27. The King is conſiderably larger than the Working-Bee, but ſmaller than the Drone; He's broad-ſhouldered, his Legs are ſomewhat red, and his Train is long and taper, which makes his Wings look ſomewhat ſhort in Proportion to his Body; His Sting is alſo ſhorter than that of the Working Bees, tho', as was hinted before, he knows well how to uſe it when Occaſion requires. In Concluſion, he has ſo much Majeſty about him, as plainly diſtinguiſhes him, at firſt View, from the reſt.

28. As to the Working Bees, they being ſo well known, I need ſay nothing about them; the Drone is as large as two of them, but very clumſy, and has no Sting; any Body may ſatisfy their Curioſity about the Drones, if in the Summer-time they go to an Hive, betwixt Eleven o' Clock in the Forenoon and Two in the Afternoon, then they will come abroad in great Numbers, and fly about, making a buzzing Noiſe; it is indeed very hard to get a View of the King, for there being but one in an Hive, and he coming ſeldom abroad, it is difficult to nick the Opportunity of ſeeing him, tho' it is no Rarity to get a Sight of him when dead; for if any will take the Pains to turn over the dead Bees, of an Hive that has been ſmoaked, they will ſcarce miſs to find him, or when two new Hives are put together, by turning the Mouth of the one upon the Mouth of the other, as ſhall be taught hereafter, you'll very often find a dead King lying in the Bottom of the empty one, but he's then ſeen greatly to the Diſadvantage, Death having

ing disfigured him, yet his Corps may be easily distinguish'd.

29. Having so far satisfied my Readers Curiosity, I shall now proceed to instruct, how to manage every Step of this Husbandry, so as the newest Beginner may find both Profit and Pleasure, in the Study of these wonderful Animals, and reap the Benefit of every Year's Labour: This is what I chiefly intended, tho' it will afterwards fall in my Way, to treat more fully of the curious and speculative Part. But, as I think, others have made the Theory their principal Study, I resolve to be the more practical; and, that I may avoid the common Error, as much as possible, I shall relate many Circumstances, neglected by others, tho' absolutely necessary to be considered, and shall give particular Directions concerning them.

30. He who intends to be a Bee-Master, should buy a Top Swarm in the End of *August*, or Beginning of *September*, when they have given over Working: Here you must take Care to avoid the general Mistake, which is, That the Hive, which is neither too light nor too heavy, is fittest for keeping. These who are of this Opinion, maintain, that the Hive that has too much Honey over Year, is indifferent and lazy in the Spring, and does not set out to work briskly; and one, say they, that is too light, will, unless supplied, perish in Winter for Want of Food.

31. This Assertion concerning the light Hive is certainly true, but the other is not so, for the more Honey an Hive has, if there are Bees in Proportion in it, the more brisk and forward will they be in the Spring, tho' one that was but of a moderate Weight may, in some Seasons, do as well as one that was heavier; yet that rarely falls out; it much oftener happens, that the heaviest of all will be pincht, and that those that were thought heavy enough, must be fed, or die.

32. The Reason why a lighter Hive does sometimes as well as a heavier one, is, if the Spring is good and early, and a continued Tract of good Weather follows, then

then the Hive, that had only a ſhort Allowance, does not come to know what Famine is; but a greater Paradox than this is, the Lighteſt ſometimes outſtrips the Heavier, and comes to good Account, when the other dies for want of Food; but this falls out rarely.

33. The Caſe in which it happens, is; when the Weather begins to be tolerably good, in the End of *March* and Beginning of *April*, then the ſtrong lively Hives ſet out to work, and immediately begin to hatch a new Brood, which, toward the End of *April*, come to require a great Deal of Food, ſo the Remains of the Winter Proviſion muſt go for their Maintainance; and then if the Weather is ſo bad in *May*, that the Bees cannot go abroad for a Recruit, their Proviſion falls ſhort, their Family being ſo numerous, ſo unleſs they be taken Notice of, and fed, they muſt die, while the Weaker and leſs forward Hives are living moderately, with a ſmall Family upon their Winter Stock; but, as I ſaid before, this rarely happens, ſo it ought not to be eſtabliſhed into a Rule, and therefore from what is ſaid, I think, 'tis plain, that the heavieſt Hive is the fitteſt for keeping, tho' Dr. WARDER be of another Opinion.

34. That you may know, when an Hive is heavy enough for keeping, or whether the heavieſt you can find be ſufficient, take the following Directions.

35. A Top Swarm, in one of the ordinary Sort of the Bee-hives uſed in this Country, which will hold about one Peck, three Lippies of Barley, *Linlithgow* Meaſure, if it be hived, or caſt, as we call it, before the 10th of *June*, will probably be a ſufficient one for keeping, and weigh about Thirty, or Thirty two Pounds *Dutch* Weight; It is perhaps the Shortneſs of the Winter in *England*, that makes Mr. WARDER propoſe keeping of them, when they are only Twenty five Pounds: If the Hive you are to buy is in a Place of the Country, where Hives, larger than the common Sort, are uſed, you ſhould take Care that it be ſo much heavier in Proportion.

36. I have tried the Weight of ſome Hives, and I have found them to be Sixty four Pounds a-piece, and

upwards; in each of which I conclude there was near Ten Pints of Honey, *Scots* Meaſure, allowing Five Pounds for each Pint, and about Fourteen or Fifteen Pounds for the Weight of the Hive, and Wax, with the Refuſe; and ſo I reckon an Hive of the ordinary Size, I mentioned, weighing Thirty two Pounds, will have upwards of Four Pints of Honey in it, which will ſeldom fail to keep over Year, and one weighing leſs, runs a Hazard.

37. The Way of weighing them, is this, Take a thin Deal-board, and in the Evening lift your Hive, ſet it on the Board, put ſmall Earth all round the Hive, to keep the Bees from coming out, ſtop the Entry with Graſs or Fogg, carry it gently on a Hand-barrow, or any other Way to the Place for weighing it, put the Deal-board along with it into the Scales, ſo weigh it; and when you have carried it back again, you may weigh the Board ſeparately, to know how much you are to diſcount for the Weight of it.

38. When you have purchaſed an Hive, according to theſe Directions, remove it about the Beginning of *September*, or ſooner, if the Bees have given over working, and before the Weather grows cold, for when they are taken to a ſtrange Place, they go abroad, and fly about to be acquainted with it. If the Weather is bad, while they are thus employed, many of them die. Here, by the Way, I adviſe you to diſturb them as little as poſſible, during the Winter, for it does them much Miſchief, if they are then diſquieted, eſpecially if they are provoked to crawl abroad, for they are not able to get in again, but periſh with Cold, or, tho' able to return, are ſeized with Sickneſs and Diſeaſes, and gradually pine away.

39. When the Day begins to lengthen, and the Influence of the Sun is reviving them out of their half-dead Condition, a little Diſturbance, to move them to take the Air, is not improper, if the Weather continues warm and kind: But even this is dangerous, for if bad Weather returns, many of them die, being unable to get back, if the Change be ſudden, and many of the Strongeſt

Strongeſt which eſcape immediate Death, take a Looſeneſs, of which they ſeldom recover.

40. This is beſt obſerved if there comes a Fall of Snow, and it frequently comes after the Seaſon is well advanced, then you will ſee them lying dead, and their Excrements, in brown Spots, along the Surface of the Snow.

41. Here, for the following Reaſon, it is proper to take Notice, likewiſe, that they ought not to be ſuffered to come abroad in Time of Snow, tho' the ſhining Sun may invite and tempt them. The Sun dazles their Eyes, amazes and confounds them, ſo they fall into it, and die preſently. The Way to prevent them is herein taught elſewhere.

42. If the Diſtance is ſmall, you may tranſport your Hive on a Hand-barrow, as before directed; if it is great, a ſafe Way is to lay a Cloth over the Mouth of it, every where ſo cloſs that none of them get out; then you may diſpoſe of it as you pleaſe; on a Horſe's Neck before a Man, a Pole betwixt two Men, or any Way your Diſcretion ſhall direct; if you neglect to purchaſe and tranſport in *September*, *April* is the next beſt Time; but if the Seller hath run the Hazard of the Winter, the Price will be the higher: You'll find Directions for buying in this laſt Month, when the Management of Bees, at that Time of the Year, is conſidered.

43. Now, I come to direct your Conduct thro' Winter: To preſerve your Hive from Cold, Storms of Wind and Rain, and from Mice, which are great Enemies to Bees, are eſſential Matters. Becauſe there are different Methods practiſed, as the different Circumſtances of Bee-Maſters allow, I ſhall mention the ſeveral Ways which I have obſerved: If Bees were only to be defended from ſtormy Weather and Cold, or if they were only to be preſerved from Mice, the Matter would be much eaſier; but when both the Weather and theſe Vermin conſpire againſt them, the Taſk is the more difficult.

44. Such as are not Proprietors of Land, or have not Leaſes for ſeveral Years to run, and therefore cannot reaſon-

reaſonably put themſelves to the Charge of Bee-houſes commonly thatch over their Hives with Straw, which, when the Work is done neatly, and the Straw laid on thick, makes a good Defence againſt bad Weather; but Mice are very apt to neſtle in the Straw, to cut out a Way to themſelves, to deſtroy the Bees, and to conſume the Honey. To prevent which, lay the whole Hive over, in *September*, with Plaiſter-lime, and when it is fully dry, cover it with the Straw; this anſwers both the Intentions aforementioned; but ſtill this Inconveniency remains, that the Strength or Weakneſs of ſuch Hives, cannot be right judged of by poiſing them in one's Hands, and this Way, in a great Meaſure, fruſtrates the buying of Hives by Weight.

45. Another Way of preſerving Bees thro' the Winter, is by making Covers of Deal-boards for every particular Hive, and liming them all around, cloſs to the Stone or Board whereon the Hive ſtands, only preſerving an Entry for them. Theſe Covers make noble Defences againſt Mice; but the Sun ſoon makes them rent, the Rain gets in, and the Hive grows rotten and mouldy, which exceedingly diſobliges the Bees.

46. To prevent this Inconveniency, ſome make Covers like Barrels, with Iron-hoops around them: Theſe Covers cling, as we ſay, with the Summer's Drought, then they drive the Hoops ſtrait, which makes them tight again; but neither will this do ſo well as could be wiſhed, for the Winter-rains ſwell them, and make ſuch a Preſſure, as cauſes the weakeſt Staves or Boards, of which they are made, to ſtart out of their Places, and ſo the Rain gets in.

47. A Way, ſo far as I know, never tried, might be taken by Gentlemen for ornamenting their Parterres, or Flower Gardens; 'tis to make leaden Covers for their Hives; theſe they cauſe caſt in different Shapes and Figures, and ſet them on Pedeſtals; I know not, how this Propoſal will take, but it would pleaſe me exceedingly to know, that each of theſe Ornamental Figures, had a Family of theſe highly profitable and wonderful

living

living Creatures in it; beſides, you ſee it fully removes the Objections, the firſt two ways are liable to.

48. Other Sorts of Covers are uſed, but, as I have ſeen none, that are better than theſe mentioned; I paſs forward to give ſome few Directions to ſuch as uſe, or incline to uſe any of theſe deſcribed.

49. Let ſuch as choiſe Straw, be ſure to put it on thick, and cauſe it to riſe pretty high in Form of a Piramid, for, if it lies flat, it will not ſo well defend the Rain; it ſhould be wrapt with a ſmall Cord, and tied down to the Stone or Board, whereon the Hive ſtands, that it may not be blown away with the Wind, or rub'd off by any Accident.

50. From Time to Time, you ſhould take a narrow Inſpection, if Mice begin to lodge in it; to this Purpoſe you ſhould be frequently pricking it up and down with ſome ſmall iron Inſtrument, to try if you can diſlodge them; I have ſometimes thought, that Tar boiled to ſuch a Conſiſtence, that it would not penetrate too far into the Hive when rub'd with it, might prove an Antidote; I reſolve to try it, but, till I find it anſwer, I don't recommend it as a *probatum*.

51. Such as reſolve to try the Covers, whether Leaden or Wooden, ſhould cauſe them to be made ſo large, as they may allow the Hive to be laid over with the Refuſe of Flax, commonly called *Pob-tow*, or ſome ſuch dry Stuff, before the Covers be put on, when ſpecial Care ſhould be taken to lime the Entry neatly, that the Bees, going out and in, may find no Paſſage to lead them betwixt the Hive and the Cover; Covers with dry Stuff betwixt them and the Hives, preſerve Bees well in Winter, and the Beginning of the Spring from the Cold; whatever Cover you intend, put it on whenever the Bees give over Work, and while the Weather is dry; for if you cover your Hive when wet or moiſt, Mouldineſs will thereby be occaſioned; which, as has been obſerved, is hurtful.

52. The two Scourges that prove moſt fatal to Bees, and ſometimes deſtroy more than the Half of our Hives in

in one Year, are Cold and Hunger. Whenever the Cold increaſes, they fall into a Lethargick State, in which they take little, if any, Suſtenance, and when it ſoftens, they revive, and their craving for Food returns: Thus the ſofter the Air continues during Winter, the more Honey the Bees conſume, and conſequently they run the greater Hazard of ſpending their whole Stock, before the Flower-ſeaſon comes round again, ſo they are in Danger of being ſtarved: On the other Hand, if they are not numerous enough in the Hive, or if the Winter is inclement, they very probably may be killed by the Cold.

53. A certain Degree of Cold in Winter, is therefore favourable for Bees; that which only pinches or benumbs, ſecures them from the Danger of ſtarving; that which does not pinch them, may occaſion their being famiſh'd, and that which pinches and benumbs them too much, is mortal: Hence it is, that Bees, during ſevere Winters, are expoſed to periſh thro' Cold, and in ſoft Winters to be ſtarved to Death; both which we ſhould endeavour to prevent.

54. When you cover your Hive, make the Entry to it ſo little, that a Mouſe may not get in; if ſhe does, ſhe'll kill and eat all the Bees, one after another, and perhaps not meddle with the Honey, until they are all deſtroyed. I have known People very much ſurpriſed, to find a Hive with Plenty of Honey, and no Bees dead or alive in it; from whence they concluded, that the Bees had taken ſome Diſguſt at their Habitation, and had gone elſewhere, juſt as they thought in the Caſe of the Death of a King, aforementioned; but if you look to the Board or Stone whereon the Hive ſtood, you'll find it ſpread over with Wings, Legs, and other ſmall Fragments of the Bees, which the Mice had carried out to eat.

55. The Way which I uſe to leſſen the Entry is this; I take a Piece of Wood ſquare, above four Inches long, and cut a Door-way in it, the Length of three or four Inches, and a Quarter of an Inch or ſo in Breadth, that the

the largeſt Bee may eaſily paſs it. I fix this, with a Needle and Pack-threed, in the Mouth of the Hive made to receive it, and leſſen, or thereafter enlarge it, by a Bit of Lime or Clay, according to the Seaſon of the Year, and as I ſee Occaſion for letting out and in the Bees, and debarring the Mice, and other Enemies that go into Hives. Others, for preventing any of them from reaching the Bees, direct the fixing of little Plates of Tin round the Entry, which ſerve them for Doors, in like Manner as at the Windows of Dove-houſes, to prevent Polecats from creeping into them.

56. The Houſe-lark, a little dun Bird with a black Bill, the Swallow, Sparrow, Moth, Spidders, Waſps, Hornets, Earwigs or Ermits, Toads, Ants and Snails, are all of them Enemies to Bees, as well as Mice, take all the Ways you can to deſtroy them. But,

57. Upon this Occaſion, I ſhall here relate a very curious Story from *Spectacle de la Nature*, or, Nature diſplayed, being a Part of a Dialogue betwixt the *Count de Jonval* and the *Chevalier du Breuil*.

58. *Count*. " A few Days ſince a Snail took it into " his Head to ſteal into the Glaſs-hive in my Window. " There was no Entrance to paſs thro' but the pro- " per one, and at length in he went. The Porters re- " ceived him very rudely at the Gate; and the firſt At- " tacks they made upon him with their Stings, obliged " him to march with more Expedition: But the ſtupid " Animal, inſtead of retreating, thought to ſave him- " ſelf by going forwards, and he advanced into the " very Middle of the Hive; upon which a whole Troop " of Bees faſtned upon him at once, and he immediate- " ly expired under their Strokes. The Conquerors were " then in no little Perplexity how to get rid of the Car- " caſs, and a Council was inſtantly held upon that Oc- " caſion.

59. *Chev*. " And your Lordſhip, without doubt, un- " derſtood all their Debates.

60. *Count*. " From firſt to laſt. The moſt experien- " ced Sages among them reaſoned in this Manner: To drag

" drag the Carcaſs out by main Strength, is an Impoſ-
" ſibility; the Maſs is too unweildy, and, beſides, the
" Body is fixed to the Floor of the Hive by its own
" Glue; and, to leave it where it lies, would be very
" inconvenient, becauſe it would prove an alluring
" Regale to the common Flies, and, at the ſame Time,
" be liable to Corruption and Worms; and theſe
" Worms, when they have devoured the Snail, will in-
" fallibly aſcend to the Combs, and attack the young
" Bees. The Damage was evident, and required an
" immediate Remedy, but you will hardly gueſs the
" Dexterity with which they accompliſhed it. *Cheva-*
" *lier*, I would be glad to know your Sentiments on
" this Affair. How were they to conduct themſelves
" on this Occaſion?

61. *Chev.* " So quick upon me, my Lord? You are
" really very ſevere, to put the Queſtion to me; for it
" will appear that the Bees had more Preſence of Mind
" than myſelf. But pray, How did they proceed?

62. *Count.* " They incruſted the whole Snail with
" Glue, and cemented it ſo cloſs, that all the external
" Air was excluded; and as no Inſect could have Ac-
" ceſs to depoſite her Eggs in the Carcaſs, ſo when this
" ſhould be reduced to Corruption, no malignant Steams
" would tranſpire through the Incloſure.

63. *Chev.* " Will your Lordſhip let me ſee the poor
" Snail's Tomb?

64. *Count.* " You ſhall have a Sight of it to-day.
" It wants nothing but an Epitaph."

65. For a general Direction where to ſet your Hives, or build your Bee-houſe to be after-mentioned, The Place freeſt from Wind, and moſt expoſed to the Sun, is the beſt; yet every Place where the Wind does not beat upon the Hives is not ſo, for they may be ſet in a Place ſo wall'd around, that the Wind cannot harm the Bees, while they are within theſe Walls, and yet, nevertheleſs, this may be a very improper Situation; for if they have no other Way to go abroad for their Food, but over the Tops of high Walls, the Wind comes upon them

them in a Surprize, beats them againſt the Stones, and kills Multitudes.

65. Therefore a Place, by Nature or Art, ſo ſcreened from Winds, (eſpecially the Southweſt, which is the frequenteſt and ſtrongeſt we have) as they can fly, (having the Advantage of the Sun, under the Cover of a Wall, or Planting, or hollow Glen, or the like) to proper Places to feed in, is the beſt Situation: They'll improve an Advantage of this Kind wonderfully, by flying cloſe to the Ground under theſe Covers: I would rather want a great Deal of the Sun-ſhine for Bees, than that they ſhould be deprived of ſuch a Shelter. This Direction is of great Uſe in high Situations.

66. If the Place have Water-ſprings, Rivulets, or Ponds by it, 'tis ſo much the fitter; if there is no Water, but at a great Diſtance, you muſt ſupply them in the Drought of Summer, in a Plate or other convenient Veſſel, and Numbers of them will repair to it for Drink; no doubt, to make the Honey and Wax they bring Home in their Bellies of ſuch a Conſiſtence, as they may manage it the more eaſily: You muſt be ſure to throw ſome Straw or Graſs upon the Top of the Water, that they may pitch upon it, and drink, without being in Hazard of drowning; or an eaſier and ſurer Way may be, to ſprinkle Water upon the Buſhes, Flowers, or Herbs, near their Hives, and they will drink up the Drops greedily.

67. If it be expected, that I ſhould here direct what Plants ſhould be propagated near an Apiary for the Food of Bees; all I ſhall at this Time ſay upon this Head, is, the more of the flowering Kind that are planted, and the more differing they are in their Times of flowering, the better, for the Bees will be ſo much the longer provided; 'tis better to have a Competency for all the Seaſon, than to have a Superfluity for only a Part of it; I know no Flowers they refuſe, except of Alder and Rue, according to the natural Hiſtorian aforementioned; and with him, I am apt to think, That Hen-bane, Milk-thiſtle, Hemlock, and ſuch like, whoſe Juice is known to be hurtful,

may very poſſibly communicate their Malignity to the Honey extracted from them; for this Reaſon, I would make no Difficulty to grub up all ſuch pernicious Weeds in the Places adjacent to my Hives.

68. Now, I think, I have directed you how to bring your Hive ſafe to the Month of *April*, the Time, when Bees commonly ſet out in our Country to their Work, and when they begin to increaſe their Family; for which End they lay their Eggs in Cells, and go abroad to fetch in that Stuff commonly called Bee-Bread, concerning which, its Preparation and Uſe in feeding young Bees, from their firſt Formation, until they are able to provide for themſelves, you ſhall be informed before this Treatiſe is ended, in the Anſwers to Queſtions relative to theſe Matters.

69. When the Weather is inviting, and your Bees are flying out and in, and when they are bringing in Plenty of this Stuff upon their Thighs, then you may conclude, all is well with them; but, if you find them at Work, and yet not bringing in this Stuff, then you may ſuſpect, that they have loſt their King ſome Way or other, and that, therefore, they will turn to no good Account.

70. You'll be more able to judge of this Matter, when you come to have ſeveral Hives over Year, and of other Things to be treated of concerning them, by comparing one Hive with another, or your own with thoſe of your Neighbours; however, if your Hive have any Conſiderable Weight, and your own, or your Neighbour's Bees are fallen to work, and yet, the Bees of the Hive you ſuſpect, bring in Nothing upon their Thighs, 'tis plain, they have loſt their King, as I have ſaid.

71. The Reaſon why I ſpeak of Weight, is, becauſe when an Hive falls ſhort of Proviſion ſoon in the Year, and conſequently grows light, they'll be going out, but bringing nothing in; ſo you ſee, that 'tis by the Weight, that you are to diſtinguiſh, whether it be Want of a King, or Want of Proviſion that ails them: But of this more by and by.

72. In the mean Time, it may be remarked, That an Hive

Hive well choſen and right managed, ſeldom wants Proviſion ſo ſoon; for 'tis commonly a Storm in *May*, that kills the Bees for Want of it.

73. About the Beginning of *April*, they only begin to bring forward a new Family, which, againſt the Beginning of *May*, comes to be very numerous; then the Conſumption within is far greater than the Supply from without, the Flowers in our Country yielding little Honey ſo early; and thus it comes to paſs, that the beſt of them all will run ſhort of Food, if a Storm of any Continuance happens at this Seaſon, when a weaker one with a ſmall Family will ſuffer leſs, as I hinted before.

74. It being a nice Point to determine, when Bees want Proviſion, and what is the propereſt Method to be obſerved in giving them Supply, I ſhall treat of it the more fully, and beg to be excuſed, if I ſeem to make Repetitions.

75. Suppoſing then that a Storm comes in *May*, and continues for ſome Time, you have Reaſon to be afraid your Bees ſuffer Want, and ſhould look to them daily, to ſee if you can diſcover any of the following Signs of it.

76. *1ſt.* You ſhould try the Weight of your Hive, if you find it light, you have good Reaſon to be afraid; for, at this Seaſon, when they have a great Number of young, the Hive will be of a conſiderable Weight, tho' their Proviſion be run, but when it falls ſhort, before they begin to breed, the Hive will feel in your Hands, as if there were little in it.

77. *2d.* If the weighing of your Hive does not ſatisfy you, as truly, I would not have you ſatisfied with it; then you muſt lift up the Edge of it pretty high, if you find the Bees make a Noiſe, and come down to ſee, what the Matter is, 'tis a good Symptom, if otherwiſe, bad.

78. *3d.* If you find any great Quantity of young Bees lying on the Board or Stone, either within or without the Entry, or on the Ground before the Hive, 'tis a Sign they ſuffer Famine; for, at this Time of the Year, whenever they are pinched for Food, they throw out great

great Numbers of young Bees, eſpecially Drones, ſome of them perfectly white, being not quite formed, others grey-coloured, and to Appearance perfect, but, as they cannot ſhift for themſelves, they crawl about until they die.

79. 4. If a good Day comes, and your Bees do not fall heartily to Work, you may conclude their Store is gone, yea, tho' they be flying out and in, if they are not taking in Work upon their Thighs, all is not well with them; for as I hinted a little before, they are in this Caſe juſt as when a Hive has not a King; but, if you give them a hearty Meal, you'll ſee them, the very next Day, fall chearfully to Work, and come home with loaden Thighs. Thus you may plainly diſcover, whether it is want of Food, or want of a King that ailed them.

80. If you find by theſe Directions, That your Bees are in Hazard for want of Food, your are immediately to ſupply them; but, before I proceed to give you Advice concerning this Matter, I ſhall anſwer an Objection which naturally falls in here, *viz.* What is the Neceſſity for letting their Proviſion be ſo far run, as to endanger them, when a little Honey, their moſt natural Food, or even a little Sugar and Water, or ſweet Wort, given at a Venture, would not only ſave their Lives, but alſo prevent the Trouble of obſerving daily, whether they are in Want or not. To this I anſwer, That they are not to be fed at all, unleſs they are in a famiſhing State; the Reaſons are:

81. 1*ſt*. 'Tis exceedingly troubleſome to give them Food, in ſuch a Manner, as to prevent their falling out about it, eſpecially if you have more Hives than one; for the neighbouring Bees are very ready to ſcent it out, which frequently ſets all the Hives in the Garden, and, perhaps, in the Neighbourhood too afighting, which occaſions much Miſchief.

82. 2*d*. The giving them Meat, at this Time of the Year, brings them all down from their ſeveral Poſts, and ſo by neglecting the Performance of their Duty to the young,

young, they receive a wrong Formation, and great Multitudes of diſeaſed ones will be found crawling on the Ground; tho' you'll diſcern little, if any Blemiſh about them, yet they are good for nothing. Now I humbly think, that theſe Reaſons, with what you'll afterwards hear concerning their Wars, may apologize for giving you the Trouble of this Enquiry concerning their having or wanting Food: I next proceed to direct how to feed them.

83. Take a Pewter or Earthen Plate, larger than the Mouth of the Hive, put Honey in it, brought to ſuch a Conſiſtence, by Water mixt with it, as they may lodge it conveniently in their Cells, and that all the candyed Bits may be broken and diſſolved. Set the Hive on it, after laying over the Honey, a Sheet of ſtrong Paper pricked full of Holes, that the Bees may eat the Food, juſt mentioned, without Hazard of drowning, or its ſticking to their Legs, then clay it all around, and ſhut the Entry with Graſs or Fogg.

84. Let this be done in the Evening, when they have given over working; and, if poſſible, in a cloudy, miſty Day, when the Bees come leaſt abroad: Remove the Plate next Morning, that their Neighbours may not find the Smell of it. You are alſo, for the ſame Reaſon, to take Care that none of the Honey be ſpilt upon the Ground, or about the Hive, if it is, 'tis ten to one, but they fight about it; ſo you ſee how fooliſh the ordinary Way of feeding, which expoſes them to ſo great Hazard, is.

85. In caſe you have not a Plate of the Size aforementioned, cauſe make a hollow Place in a thick Deal-board, ſo large as to contain a Plate or Aſhet with the Honey, and place it ſo in the Board, and the Board ſo under the Hive, that the Brim of the Plate may not hurt the Combs; then ſhut up the Hive, as before directed. This Deal-board ſhould be as large as the Boards or thin Stones whereon your Hives ſtand, and may be kept for feeding your Bees from Time to Time.

86. Another Way of feeding, and which I think beſt in the Spring, when a ſmall Quantity of Food may probably be ſufficient, is to turn up the Hive, and to pour the

the Honey prepared, as directed, but ſomewhat thinner, here and there upon the Combs, ſo as it may run down amongſt the Bees; which Method has this Advantage of the other, That it does not bring them down from their ſeveral Stations; and tho' it ſeems to be a coarſe Way of doing, it will anſwer the Deſign very well. Poſſibly a young Beginner will think this an hazardous Undertaking, but there's no Fear, even tho' the Bees be lively.

87. As to the Quantity of Honey, you may take a Pound or ſo, which I think is ſufficient for one Time, tho' ſome direct a Pound and a Half, or two Pounds: You may intermit the Night following, or, if you think there is no great Danger, you may wait till you ſee how the Weather turns out; for if 'tis ſo far in *May*, that the wild Muſtard among the Corn is flowered, one good Day's Work upon it will afford eight Days Proviſion; but if the Scarcity happens before the wild Muſtard, one of our earlieſt flowering Plants of the wild Kind is bloſſomed, the Bees muſt be taken Notice of the more carefully, and while you find Occaſion for it, you muſt continue to feed them.

88. I ſhall next inform you, how to do with an Hive that hath loſt its King. I ſuppoſe you'll know by this Time, whether 'tis a King or Proviſion that's wanted. If a King, you muſt let the Hive be doing, the beſt Way it can, till your firſt Hive ſwarm; then put the young King and his Company upon it, whom they'll receive very chearfully, and theſe two united Hives will make a very good one before the End of the Seaſon. The Way of putting a young Swarm to any old Hive, you ſhall be taught afterwards. In the mean Time, I proceed to ſpeak of their Wars, and to direct you how to put an End to them.

89. Bees have a martial and unpeaceable Spirit, and ſtrive to enrich themſelves at the Expence and Ruin of their Neighbours; for when no Honey is to be had among the Flowers abroad, they will venture their Lives, and rob for it; then not an Hive within their Reach is

left

leſt unaſſaulted: I ſhall firſt, before I propoſe Remedies, teach you how to know when they are engaged in Battle.

90. 1. You'll perceive Bees going out and in to the Hive, which is receiving the Injury, early before other Bees are fallen to Work, and at Even when other Bees have left Working; they will alſo be doing ſo at the Hive that is committing the Robbery, for theſe Plunderers find this the beſt Time for their Purpoſe, becauſe they meet with the leaſt Reſiſtance.

91. 2. You'll find them meet with Reſiſtance, and the further the Day is advanced, they will be the more reſiſted, until the Evening come on: You will likewiſe obſerve theſe Robbers hovering in their Flight, about the entry of the injured Hive, as Bees of a new Hive do for ſome Days about their old Quarters, and then you may ſee ſome of the injured Bees running about the Entry, bending up their Wings, and catching at every Bee that lights upon the Board. If they find, upon Examination, that it is a Friend, then 'tis allowed to paſs; if an Enemy, 'tis immediately ſeized, and muſt either fight or be killed, or fly, if it can get off: You may alſo perceive the injured Bees, now and then, haling out a Robber, which they have apprehended within Doors, and likewiſe ſee ſome of theſe Robbers coming out in ſuch a Hurry of Eſcape, as will often occaſion them to tumble down head-long in the Flight: While the Battle continues hot, you will perceive great Numbers of Bees falling down ſlain on the Ground, before the Hive.

92. So ſoon as ever you find them engaged, endeavour to put an End to the War in the very Beginning, for 'tis then done more eaſily than afterwards. For this End, leſſen the Entry to the Hive that is getting the Wrong, to ſuch a Degree, that only two, or at moſt three Bees, can go out and in at once; for doing of which, ſtraiten the Entry, as before directed, for holding out Mice.

93. If, upon the firſt Appearance of Robbery, you leſſen the Entry whenever their Work is over at Night,

Night, and enlarge it the next Day, when they begin to be throng at Work, that they be not impeded in their Labour by ſo ſmall a Paſſage; by doing this, regularly, for ſeveral Nights together, further Diſorder will be prevented effectually.

94. The Reaſon is plain. The Nights are yet cold, 'tis the weakeſt Hives, as I told you, that ſuffer this Calamity, the Bees therein being the leaſt numerous; and the Cold therefore affecting them moſt, they go up high among the Combs, ſit cloſs together, and preſerve Heat, as if it were yet Winter. Thus the Door is left without a Guard, and thus they become a Prey to their Enemies.

95. Now, as the ſtraitning of the Entry makes their Habitation warmer, cheriſhes them, and brings them down nearer to the Door, ſo they can the better examine who comes in, and are in the better Condition to make Reſiſtance; for now, that the Paſſage is ſo little, a ſingle Bee, or two, can make a more effectual Defence, than twenty or thirty could do before; and hence it is, that the Robbers, meeting with ſo ſtrong Oppoſition, give over making further Attempts.

96. But if there hath been a great Slaughter of the weaker Party, before you knew the War was commenced, perhaps this Remedy may prove ineffectual. In that Caſe, you muſt either, for ſome Days, ſhut up the Hive that is attacked altogether, that the Deſtroyers coming, from Day to Day, for Spoil, may be wearied by Diſappointments, and give over their Deſign, or carry away the Hive to ſome other Place, at leaſt to a Mile's Diſtance; for, if 'tis ſet within Bounds known to the Robbers, they will renew the Attack; or, if you can do no better, take a deſperate Cure for a deſperate Diſeaſe, and animate your diſtreſs'd Bees, as directed by Mr. *Thorley*, to fight like Devils, by diſturbing them with a Bunch of ſtinking Madder, (I ſuppoſe any other ſtinking Plant will do) tied to the End of a little Stick of a convenient Length, till they begin to ſhew their Reſentment. Then you'll ſee them ſeize the robbing Bees,

Bees, and tumble them down in great Wrath, ſo you may aſſuredly infer their Safety. They will beſt defend themſelves. At the Time you are thus employed, it is needful to give you a Caution to take Care of yourſelf. But ſhould your Hives thus attacked have but a few Bees, and little Honey, it is better to take them than to ſtand a Trial.

97. Thus I have led you on Step by Step, and thro' ſeveral Difficulties, to the 20th of *May*; when it may be preſumed, that the wild Muſtard, and ſome other flowering Plants are bloſſomed, and ſo that your Hive is paſt Hazard of Famine; next, that you may know when your Bees are ready to ſwarm, or caſt, I adviſe you, now and then, to lift up the Edge of your Hive, and look in; if the Spring has been forward, you'll obſerve them, their Family being increaſed, in conſiderable Numbers below the Combs, by the Beginning of *May*, and if the Weather continues good, they will come more and more in View, and make a buzzing Sound in the Night-time, which will ſtill increaſe till they caſt. But, if a cold Storm comes, they will draw cloſs together, and out of your View among the Combs. They will alſo deſiſt from making a Noiſe.

98. As they increaſe in Numbers, they begin to water, and you will find ſome Drops of inſipid Liquid, upon the Board or Stone before the Entry, which ſometimes runs over upon the Ground. This is, no doubt, the Exhalations occaſioned by their Warmth, which, being condenſed by the external Air, falls in Dops, as I have ſaid; but, when they grow very ſtrong, this Water is not to be found.

99. The Reaſon is probably this, That when their Heat grows very great, as you'll find it, if you hold your Face or Hand to the Door, it forces theſe Exhalations a good Way off, before the external Air is ſo cold as to condenſe them; ſo inſtead of falling on the Board or Stone, as at firſt, they will now fall upon the Ground, and are there imperceptible; but the moſt certain Sign, which proclaims that Event to be the very Day, is when

the Bees forbear flying into the Fields, tho' the Seaſon is inviting.

100. Before I go on to adviſe you, about the ſwarming or caſting of your Bees, I ſhall here ſay a Word or two concerning the Entries and Covers of Hives. This you poſſibly expected ere now. As to the Entry, it muſt be gradually enlarged, as the Bees grow thronger at Work; you can eaſily judge what is ſufficient, and may manage accordingly with a Bit of Clay, by which, as aforeſaid, you may either enlarge or ſtraiten the Entry, as you ſee Cauſe. If a Storm comes, you muſt ſtraiten it, to keep the Bees warm, and if Enemies attack, you are before directed to do it.

101. If you expect that I ſhould adviſe you, to remove the Winter Cover from off your Hive, that the Sun may have Acceſs to play upon it, you are much diſappointed, for it is far better that you keep it on; becauſe, when the Hive grows very throng, and yet not quite ready to caſt, the intenſe Heat of the Sun upon it, when uncovered, ſo ſtifles the Bees within it, that they come out, and hang in great Cluſters about the Hive, which frequently puts them ſo out of their Meaſures, that a Hive, which, to Appearance, was ready to caſt, will ly out this Way for ſeveral Weeks.

102. When this happens far in the Year, it makes the young Hive of ſmall Value, not having Time to do much in that Seaſon; and ſometimes, when bad Weather comes, it will put the Bees from ſwarming, which is a great Loſs.

103. They are very unmanagable, when they take this Conceit of lying out in Cluſters, and I know nothing that prevents it ſo much, as keeping on the Winter Cover all the Year round: an Exceſs of Cold, and an Exceſs of Heat, are both prejudicial; it ſerves to prevent the one in Winter, and the other in Summer.

104. When, by raiſing the Side of your Hive, you diſcover it to be quite full of Bees, you ſhould be on your Guard; likewiſe, when you find the Water dried up, it denotes that they want Room, as I ſaid before,

and

and when they come out and hang in Cluſters, that is another Sign of it; any of theſe prognoſticate, that the Time of their ſwarming draweth near: By this Time alſo, the Drones will begin to make their Appearance, and your Hive will be making a Reel, as we call it, once every Day, which a young Bee-maſter is apt to take for ſwarming, till he be otherwiſe taught by Experience.

105. This reeling is occaſioned, by a great many of the Bees flying, and making a confuſed Motion and Noiſe in the Fore-part of the Hive, much after the Manner of Gnats, when they make that Motion we call Midges dancing: They make this Reeling all the Year round, even in Winter, in a very fine Day, but now they do it every Day; which is the Cauſe why I have taken Notice of it here.

106. Tho' the Bees ſhould not ly out in Cluſters, yet, every Morning when they come abroad to work, a great many of them will ſtay about the Door, upon the Board or Stone, and perhaps ſcatter themſelves around the Entry of the Hive in a large Circle: This they will probably do for ſeveral Days before they ſwarm; you'll likewiſe by this Time obſerve, that when they give over working in the Evening, they double, triple, or quadruple their Guard, which ſome Time ago conſiſted, only, of a ſingle Centinel or two ſtanding Centries in the very Paſſage, or within it, with their Tails outward, and bending up, and their Wings in a continual Motion, making a humming Noiſe, but now you'll ſee ten or twelve about the Door in the ſame Poſture and Motion.

107. When you make theſe Remarks, you ſhould cauſe watch them conſtantly, from before Nine o'Clock, till the Height of the Day is more than paſt, and their Throng is fully over; 'tis likewiſe convenient to have an Hive provided and in Readineſs for the Swarm, concerning which, take the following Directions.

108. If your Bees ſwarm in *May*, or firſt Week of *June*, your Hive ſhould be ſomewhat larger than the old one, eſpecially, if the Swarm is large, Which a young

young Bee-maſter cannot eaſily judge; neither can plain enough Directions be given to make it known, tho' Obſervation and Practice will teach it.

109. If they ſwarm in the ſecond Week, the new Hive may be juſt of the Size of the old, but it is better that it ſhould be little, than too big; becauſe, a little one can be enlarged, as Need requires, but one too large makes a cold Habitation for them, all the Winter over, there being empty Room in it; beſides, it occaſions that they don't ſwarm early next Year, having the Void to make up in the Spring, before they ſwarm.

110. I need not direct you to put Sticks in your Hive, for every Body does it; keep an Inch of one of the two lower ones, which croſs other directly above the Door without to take hold of, for raiſing up the Hive the more eaſily to look how all is within it: 'Tis convenient, that the reſt of the croſs Sticks ſhould alſo be ſo long, that a Part at each End may be on the Out-ſide; for by this Aſſiſtance, one can lift or poiſe the Hive the more coveniently, and they can be the better pulled when the Combs are to be taken out, eſpecially if they be great at the one End, and gradually ſmall to the other.

111. The middle Stick, that ſtands perpendicular, ſhould be ſo long, that the End of it may juſt reach the Stone or Board, whereon the Hive ſtands: It ſhould likewiſe be pretty thick, that when the upper End of it is cut ſmall, for about the Length of an Inch, to go into the Top of the Hive, the Stick may have a good Shoulder for ſupporting it, that the Hive may not fall flat in the Top, or yield to a Side with the Preſſure of the the weighty Combs full of Honey within, and with the Weight of Turff, or any ſuch Thing on the Out-ſide, which Hives often do, eſpecially if they are long kept, and which very much incommodes the Bees, occaſions the Rain to ſtand upon the Hives, and ſo they rot much the ſooner.

112. With reſpect to the Faſhion of the Door, take a Piece of Wood, three Quarters of an Inch ſquare, and four Inches long, cut a Door-way in it more than half thro'

thro' the Stick, and leave only a very ſmall Bit at each End, whereupon it is to reſt: When this is done, cut out as much of the loweſt Roll of the Hive, as receives the Piece of Wood, which fix there with a Needle and Pack-threed.

113. This Sort of Gate, which I partly directed before, and which extends in Breadth, is certainly better than that which hath the Extention of it to the Height; for, when the loaden weary Bees pitch upon the Board before it, and run forward to go in, if they fall not directly oppoſite to the Door, they are apter to go wrong than right, and after going a good Way round the Hive, in Search of the Entry, muſt return, which is a Fatigue, and hinders them in their Work; whereas, when it is thus broad, they will rarely miſs it.

114. When your Hive is thus prepared, and after the looſe Straws, or any Thing elſe that will come off by cutting, or rubbing, are taken away, to ſave theſe cleanly Creatures a great Deal of Labour, dreſs the Top of it within with Honey, or with a ſmall Handful of Fennel, dipt in Ale, ſweeten'd with Sugar; this done, keep it at Hand, and have likewiſe ſome Veſſels of Water by you, with a Bundle of Straw, or long Graſs, lying in each of them: But I return.

115. You'll ſee Numbers of Bees flying round the Gate, in the reeling Way deſcribed, and obſerve their Increaſe and Noiſe grow greater: Thoſe about the Entry will begin to make greater Stir; you'll alſo ſee them thronging in great Haſte out of it, and thus they will continue to do, till they are all come off.

116. In the mean Time, while you are ſatisfying your Curioſity about their Way of ſwarming, you muſt have a Servant or two employed to go round them, to ſee if they are beginning to hive upon any Place, or, if they are going out of your Garden: If you, or your Servants, find them breaking of at any Side, Water muſt be thrown againſt them, to beat them back; Thus you are to endeavour to keep them within the Garden, till they pitch upon ſome Place whereon to hive, which you will

will ſoon diſcern by their gathering together to it. The Author of the *French* Natural Hiſtory and Mr. *Thorley* agree, that Noiſe made with Kettles, Pans, or any muſical Inſtrument, is a needleſs Ceremony.

117. If there happens to be a good Breeze of Wind, when they are ſwarming, 'tis a great Advantage, for this keeps them low under Shelter, and determines them to chuſe a Place much the ſooner; but, if 'tis a calm ſultry Day, they fly much higher, and cannot ſo eaſily be kept from going away; I ſhall therefore ſpeak the more fully on this Head.

118. 'Tis very ordinary for them before they ſwarm, to ſearch in all the Neighbourhood, for a fit Place to take up their Quarters in: If there is a great Houſe, a Church, or a Steeple, near, 'tis ten to one, but your Swarm may eſſay to go there, and take up their Abode, in ſome Chink of a Wall, or Ceiling of a Room, or the like, if their ſo doing be not hindred; and, if an empty Hive with Combs in it is allowed to ſtand in a Garden, it will rarely miſs of being provided with a Swarm, for in their Search for a Houſe to come to, when they leave their old Habitation, they will find this a well furniſhed one, and repair to it; but as this Practice might have a bad Tendency, there is a Law againſt it.

119. The Way to know, if they are to take Quarters of their own chuſing, is, by obſerving thoſe Places you ſuſpect, if you find Bees flying about them, or, eſpecially, if they are going out and in at any Hole, or Chink, as if a Hive was there, then your Suſpicion is juſt; for they will go ſome Days before they ſwarm, to an old Hive, or a void Place of an Houſe, carry out all the Duſt and Naſtineſs, and ſo prepare for the Family's Accommodation.

120. The Lady of a great Houſe having asked a Friend of mine, if any of his Bees were ſwarm'd, he anſwered no; there is a Swarm then, replied ſhe, of ſome other Bodies, hived in the Top of my Cloſet-Chimney; ſo ſhe carried him to her Cloſet, ſhewed him ſome Bees that had fallen down, and deſired him to liſten to the Noiſe

Noiſe in the Chimney, which, when he did, he told her, there was no Swarm there as yet, but that there were ſome Bees come there, to provide Quarters for one, which would, no doubt, follow, if they were not hindered.

121. Therefore he adviſed her to burn now and then a little Brimſtone in the Chimney, which diſoblged them; but the next Day, or the Day following, a Swarm took up their Habitation in the Ceiling of the Houſe, near that very Chimney Top.

122. They are apt to play ſuch Tricks, when there happens to be a Tract of fine calm Weather, at the Time of their ſwarming. For the Goodneſs of the Weather allows them to roam to all Places they have a Mind, tho' they be high; whereas, when the Days are not ſo good, they have not ſo much Time to ſpend in theſe Affairs, neither do they fly to ſuch high Places, eſpecially if the Wind is high.

123. Another Way to know, if they are for a Habitation of their own chuſing, is this: They'll either, in the Time of Swarming, eſſay to break out of your Garden, which you are to endeavour to prevent, by throwing Water among them, on that Side, where they are making the Breach, as aforementioned, which often proves effectual, but not always; or, after they are hived upon a Place, they will riſe again, and take their Way immediately, yea, ſometimes they go up into the Hive you put over them, and ſtay a while, and yet, will come down again, and fly away.

124. The Way to prevent which, is, in the firſt Place, to lay the Hive over them very ſoon; if they begin to go up in it, it is a good Sign, tho' not an infallible one, as you have juſt now heard.

125. Next, you are to continue a watchful Eye over them, eſpecially if they go not up into the Hive; for this is an ill Token; as long as they ly quiet, there is no Fear of them; but, if they begin to run over other, and make a Noiſe, and a continued Motion with their Wings, you may then be ſure, they are not to ſtay.

126. In this Caſe, whenever you perceive them making

ing this confuſed Motion and Noiſe, you are to throw a good Deal of Water among them, with a Bundle of Graſs or Straw, which will humble them for a while; if after they dry, they begin to their Confuſion anew, you muſt water them again, and ſo repeat this Remedy, till the Evening come on, which will readily determine them to go up into the Hive; if they do, they ſeldom go away, after they have been a Night in their new Habitation, unleſs the King has gone back to the old Hive, before you began to water them: In that Caſe, 'tis in vain to imagine they'll ſtay, even tho' you have kept them a Night.

127. That very Summer, when, as I told you, the Bees were ſeeking Lodging in the Top of the Lady's Chimney, the Weather was extraordinary ſoft and warm, which occaſioned a great many Hives to fly away; in the Struggle I made to keep mine; there was one Swarm, particularly, that ſettled upon the Trunk of an Apple-tree, which made it very difficult to get a Hive to cover it, ſo as to encourage them to go up; mean while, they began to act the Part I juſt now deſcribed, which obliged me to water them from Time to Time, until the Evening: This I thought would have effectually put them up, but, to my Surprize, I found them in the Morning where I left them at Night, which ſet me a-thinking what I was to do with them next.

128. I recollected that I had an Hive in my Houſe, with empty Combs in it, which I concluded would aſſiſt me to overcome the Difficulty, and ſo it happened: I ſet it over them in the Place of the other, and, in leſs than a Quarter of an Hour, they went all up into it, and the Hive became a very thriving one.

129. I therefore adviſe you, if you have any plundered Hive, to keep it carefully for this Purpoſe; yea, if you have any late Swarm that has little Honey in it, I adviſe you to kill the Bees, and to preſerve the Hive with the Honey in it from Mice and other Accidents, that you may have it in Readineſs to ſerve you in a Pinch of this Kind; or, tho' you ſhould not have Uſe

for

for it in this Way, yet it may ſerve another late Hive, and make it either the fitter for keeping, or killing: Upon theſe Conſiderations 'tis an Advantage to have ſome ſuch Hives by you, tho' there be an *Engliſh* Quart of Honey in each of them.

130. I come now to direct you how to manage, when your Swarm begins to gather together in one Place; if it hath been long ere the Bees took a Settlement, and eſpecially if they have been eſſaying to break away, or, having begun to fix upon one Place, have left it again, and choſen another, then, whenever you ſee a conſiderable Number of them together, I ſhall ſuppoſe the Bigneſs of your Fiſt or ſo, throw Water on them, which will prevent their riſing; immediately thereafter lay your Hive over them, tho' the Bulk of them be ſtill flying round about you; only take Care you kill as few as poſſible with your Feet: If they like their new Houſe, they'll ſoon go up into it, and when they are up, they will fall to Work, unleſs upon Trial they alter their Opinion, and reſolve to leave it.

131. It is ordinary whenever the Hive is laid over them, to cover it with a white Linen-cloth; but this is not material, 'tis only neceſſary that ſomething or other be laid over it, to make a Shade; an Armful of Graſs or Weeds, of no bad Smell, is as good as any Thing to hinder the Sun from beating with Violence upon the naked Hive, which is apt to make the Bees ſtartle, and diſpoſe them to leave their Quarters.

132. I might have told you, before I adviſed you to lay the Hive over them, to conſider the Place where the Swarm ſettled; if upon any Thing that can be eaſily brought to the Ground, ſuch as the Branch of a Tree, a Shrub, or the like, it ſhould be done, and the Hive ſet upon it inſtantly; but if the Hive goes ſo very cloſs to the Ground, that the Graſs and Weeds ſhut it up on all Sides, you muſt raiſe up the Edge of it with a Stone, or any Thing convenient, that the Bees may have free Acceſs out and in.

133. If they ſettle upon the big Branch of a Tree,

or the Side of an Houſe, or upon any Thing that cannot be brought to the Ground, then take the Hive to them, and put it over them the beſt Way you can: But becauſe, when they pitch upon the Branch of a Tree, and an Hive is ſet over them, 'tis ſo much expoſed, and in View, that it ſeems to be no ſecure Habitation for them, they therefore do not like to go up into it: In this Caſe you ſhould take a coarſe Sheet or Table-cloth, wrap it round the Hive and them, and bring both as handſomely down as you can, and ſo as to ſhut the Hive quite up, except a direct Paſſage for the Bees to go out and in, this will make them like the Hive the better, and go up into it much the ſooner. Mr. *Thorley* adviſes, if they ſettle on the Body or large Arm of a Tree, *&c.* to ſweep them into the Hive with a Bruſh, or a little Handful of ſmall Branches. This is beſt done when the Sun is ſet, and the Bees are, by the Cool of the Evening, become leſs animated and furious, ſays the *Natural Hiſtorian* aforementioned.

134. When your Bees ſettle in different Places, as they frequently do, if you allow them a little Time, you will find thoſe who want their King, riſe gradually and join thoſe who have one; but 'tis beſt not to allow them this Time, leſt they go back to the old Hive, and ſo make the new one inconſiderable; or, leſt thoſe who have the King fly away; you are therefore to conſider, what Cluſter can be moſt eaſily tranſported to the other, lift that, join them, and ſet your Hive over them, while both of them are lying on the Ground, if poſſibly you can.

135. It often happens, when Bees are caſting, that the Swarm goes back to the old Hive, where they will ſtay all Night, and if the next Day is good, will caſt again: This they will do, either before, or after they begin to gather in a Cluſter, or ſometimes even after they are gone up into the new Hive: In the firſt of theſe Caſes, you will ſometimes obſerve, when they are hiving, that they will not be quite come off, and yet that thoſe that are, will be going home again, making a

Croſs-

Croſs-tide at the Paſſage: Sometimes they will come quite off, fly about a little, and turn in again; this you cannot prevent.

136. If they gather in a Cluſter, and thereafter go back, you muſt wait a Day or two longer for them; but if they do this every Day, as ſometimes they do for eight or ten Days together, and are very vexatious; then you muſt either ply them with Water, as directed in the Caſe of their flying away: Or whenever you find them quite come off the Hive, and beginning to gather in a Cluſter, you might cauſe lift the old Hive ſpeedily, and carry it to a Mile's Diſtance at the leaſt, which will cauſe them ſtay; but if the young Hive does not ſettle according to your Expectation, the young King not being fully ripe and come off, you muſt certainly bring back the old Hive next Morning.

137. If they have been in Uſe to go up into the new Hive, and yet to go home again, in this Event you muſt uſe the Remedies propoſed in the former Caſe, or carry away the new Hive whenever the Bees go up into it.

138. I ſhall mention another Caſe: A great Part of the Swarm goes back in Time of Hiving, thoſe that ſtay behind gather into a Cluſter, go up into the new Hive, and fall aworking; but, not being proportioned to the Hive, it cannot be ſuppoſed, that they can turn to any good Account. In this Caſe, you muſt either put them back at Night to the old Hive, and wait their Caſting again next Day, or you muſt keep them to join another Swarm; both which you ſhall be taught to do.

139. When your Bees are going up into their new Houſe, begin to work, and have all good Appearance, you muſt let them continue in that Condition all Night; next Day lift your Hive, and ſet it in the moſt convenient Place, which is certainly where the Bees were hived, if it is on the Ground, and there be nothing to hinder it to ſtand there; for if you remove it, you'll ſee for the next two Days, a great many of the Bees

ſpending

ſpending their Time to no Purpoſe, flying about the Place where they were hived.

140. Wherever you ſet them, you muſt have ſomething provided for the Hive to ſtand on, ſuch as wooden Stakes driven into the Ground, till they are only ten or twelve Inches above it; on this ſet your Deal-board or thin Stone, and when you have it right adjuſted, that is, not perfectly level, but declining a little forward, then ſet on your Hive with the Entry of it to the South, take equal Parts of Clay and Horſe-dung, well wrought together, and put a little of this all round the Hive, which will both fix it to the Board or Stone, and keep Rain and Vermin from getting into it: You muſt alſo cover it with ſomething for keeping out the ſcorching Heat of the Sun, which might ſo far at leaſt, melt the Combs, as to diſengage them from the Hive, and make them fall down: The ordinary Thing uſed for this Purpoſe is thin Turff, called Divots, which ſhould be made ſo long as to come near to the Door, to overſhade the Hive the more.

141. The Reaſon why the Hive ſhould decline a little forward is, That when the ſtrong ſoutherly Wind blows the Rain into the Entry, it may run out again; as alſo, that the Bees may the more eaſily manage any Thing they have to take out, ſuch as dead Bees, or Clods of Naſtineſs that has gathered in the Winter-time, and all other Rubbiſh whatſoever; for when the Board declines to the Door, it gives them the Advantage of having their Burden to draw downwards, ſo they perform their Taſk the ſooner, and the leſs Stop is put to their neceſſary Work of gathering Honey; wherefore take this general Advice to contrive all Things about them ſo, as to give them as little Hindrance in their main Work as poſſible, for much depends upon a Summer's Day or two with them; and for this very Reaſon you ought to keep the Stone or Board, and every Thing within or about the Hive, as clean as you can, to prevent their Trouble and your own Loſs, eſpecially

about

about the End of *March*, when every Hive ſhould be lifted up, and the Board cleaned.

142. If you want to be informed, whether a Deal-board or a Stone is propereſt for ſetting your Hive on, I anſwer, That, ſo far as ever I could diſcover, the Difference is very inconſiderable, the Stone is not ſo liable to have Rifts and Chinks in it, thro' which the cold Wind may get up to the Bees, and, in that Reſpect, is better than the Board; but 'tis alledged the Stone is too hot in Summer, when the Sun beats violently on it, and is therefore offenſive to them when they go out and in; as alſo, that it is cold and damp for them in Winter: Theſe may be Inconveniencies, tho' I could never be ſenſible of them.

143. The Deal-board has this Advantage, that it makes eaſier Work to tranſport them with it, than with a Stone, and you can gueſs pretty well the Weight of your Hive, by lifting the Board along with it, when you have a Mind to poiſe it in your Hands; whereas, when it ſtands upon a Stone, every Time you lift it, you muſt pull it therefrom.

144. If you chuſe the Deal-board, cauſe it to be made of well-ſeaſon'd Wood, light and well joined; but if the Stone be your Choice, you may batter on ſome Folds of Grey-paper, upon the Part before the Door, to moderate the Heat in warm Weather.

145. That Part of the Stone or Board before the Entry ſhould be four or five Inches broad, for when it is too narrow, the Bees who are weary with a long Flight, and come Home loaden, are not able to guide themſelves ſo exactly, eſpecially if the Wind blows ſtrong, as not to miſs the Board frequently, ſo they fall upon the Ground, and muſt take Wing again ere they get in, which they are not able to do, till they reſt: This makes a Hinderance in their Work, which ſhould be prevented, and to avoid this Inconvenience, I have ſometimes taken a Piece of Deal-board, of a convenient Length, to make an eaſy Slop, and have made it reſt betwixt the Ground and the Fore-part of the Board or Stone whereon the Hive

ſtands

ſtands, that the Bees might fall upon it, when they miſs the proper Place left before the Door, and climb up eaſily without flying.

146. In or about ten, twelve, or fourteen Days, you may expect a ſecond Swarm; you are not to look for it in the Seaſon, if the Time exceeds Seventeen or Eighteen, tho' the firſt Swarm went off ſoon; but you are not to expect ſuch a Solemnity at this, as at the former Swarming; for they do not ly out in Cluſters, nor ſpread themſelves about the Entry, but come off without any Ceremony, and yet ſays a curious Obſerver, you have a much ſurer Prognoſtick, than you had the firſt Time; for if you liſten, eſpecially when they have done working, you will hear one of them making now and then a very diſtinguiſhable Sound from the reſt, which he begins to do about Forty eight Hours before Swarming, with this Difference, that the firſt Twenty four Hours the Sound is much weaker, and the Intervals betwixt the Sounds are greater than in the other Day (for he is ſounding both Day and Night) when the Noiſe is louder, and much more frequent; for it will be five or ſix Minutes betwixt the Sounds the firſt Day, or perhaps more, whereas there will be but a Minute or two betwixt them the ſecond.

147. This Sound, commonly called Towling, proceeds, I ſuppoſe, from the young King, giving Signal to his Company to make ready for a March: You'll hear it performed on different Keys, and coming from different Corners of the Hive from different Kings: I cannot pretend, ſays he, to deſcribe this Sound fully to your Underſtanding; it pronounces, as it were, *Peep, peep, peep*, a Dozen or twenty Times ſucceſſively with one Breath, then ſtops, calls that ſame Way again, and ſo on, ſomewhat like a Hen-chicken peeping for its Dame, when it hath loſt her.

148. I do indeed believe, that this Noiſe is made by the King, and that there are as many young Kings in the Hive, as there are different Sounds uttered; but why this Noiſe is made before the Caſting of a ſecond

or

or third Swarm, and not before the firſt, I know not; neither can I account for ſo many Kings being in a ſecond Swarm; and ſo far as ever I could diſcover, only one in a firſt.

149. I one Day, ſays he, made a Diſcovery, which confirmed me in my Opinion concerning the Sounding of the Kings: I had an Hive which ſwarmed a ſecond Time, and, becauſe it was late in the Year, I inclined to put it home to the old Hive; which I did, by turning up the Mouth of the new Hive, and ſetting the Top of it upon the Ground, with the Edge of it touching the Board of the old Hive, that ſo they might crawl up, and go home to their former Habitation: They were ſlow in their Progreſs; ſo a Friend, who was with me, propoſed that we ſhould try to catch the King, which we concluded would quicken their Motion: Accordingly we ſet to Work, each of us with a Twig in our Hand, and when we turned over the Bees, came in View of the King, and tried to catch him; he, whenever he felt the Touch, made the ſame Noiſe we heard before Swarming, and endeavoured to eſcape, but was catched at laſt.

150. I ſhall here narrate an Obſervation, which was communicate to me by two Friends curious in Inquiries of this Kind, which proves that there are ſeveral Kings in a ſecond Swarm.

151. As they were one Day in their Garden, an Hive happened to caſt a ſecond Swarm, which ſettled on a Gooſe-berry Buſh, but when they came to view the old Hive, they found it in great Diſorder, and diſcovered a diſtreſſed King lying on the Ground before it, which determined them to put back the new Hive, to preſerve the old one, by furniſhing it with a King, but the Bees of the old Hive took Care to provide themſelves by detaching a good many of their Number, to bring back a King from the new Swarm, which they did, and which Detachment having brought away too many Attendants along with the King, my Friends found that the remaining Part was not worth keeping, and ſo they put back the

the ſaid Remainder at Night. Next Morning when they went to ſee the Hives they had put together, they diſcovered other three Kings, all lying dead at the Entry.

152. I had almoſt forgot to relate a material Circumſtance of the Story, which was, That immediately, upon finding the diſabled King, my Friends put him upon the Board at the Entry to the Hive, to try if it would quiet the Diſorder, which indeed it did, for the Bees ſhewed a great Fondneſs of him; but my Friends thinking it unſafe for them to have ſuch an Invalide of a King, determined, as I told you, to put back the Hive, ſo to provide them with a young vigorous one; but, as you heard, they ſupplied themſelves, and ſo were quiet; upon which my Friends had the Curioſity to try them again with the diſabled King; but as they ſhewed him no Reſpect, ſo neither did they offer him any Inſolence, but treated him with Neglect, which was not the Caſe when they took him to another Hive, for there he was attacked with great Fury.

153. When you find the Sounding in your Hive loud and frequent, you'll next Day have a ſecond Swarm, which you are to manage in the ſame Way as you did the firſt; if it is ſoon in the Year, and if your old Hive is ſtrong, you may have a third in three or four Days, which will give you the ſame Advertiſement as the former did; but after ſix Days you are not to expect the third.

174. A third Swarm is ſo inſignificant, that 'tis beſt to put it back, eſpecially if your two former were large, or if it is late in the Year; but if you think the old Hive can well enough bear the Want of it, then you may either put it to the ſecond Swarm; or if you have incautiouſly put your firſt or Top-Swarm in too big an Hive, then you may put your third to it; in any of theſe Caſes it will turn to good Account, which it could never have done by itſelf.

155. The Deſign of joining two Hives together, is either, as you juſt now heard, to make them turn to good Account in one, which by themſelves would prove

of

of little Value, or to enlarge your Hives, which perhaps are of too ſmall a Size. Or, 3*dly*. to afford a King to an Hive that has loſt one. A large Hive will yield a great Deal of more Honey than a ſmall one, and yet require no more Charges or Attendance, unleſs it be a Trifle more for the Price of the Hive.

156. I make this Suppoſition, that you have two Top-Swarms hived in one Day, which you incline to join together; and becauſe you could not know which of them would be largeſt, you have therefore a large Hive provided for each of them. When you have got them both houſed, you muſt conſider which is the largeſt, becauſe the ſmalleſt muſt be put into the Hive which contains the biggeſt; this is a good Way to prevent their fighting; for when a large Swarm is put into an Hive upon a ſmall one, being conſcious of their own Strength, they reſolve to make good their Quarters, while the leſſer one in Poſſeſſion, will not yield until ſuperior Force prevail, thus they commonly fight.

157. Wherefore, when the Evening comes, take the Hive with the ſmalleſt Swarm, turn up the Mouth of it, ſet it firm in the Middle of the four Stakes which you had driven into the Ground, for the Hive to ſtand on, ſet the Mouth of the other Hive upon it immediately, and ſo fix them, with a Cloth about them, to ſtand all Night, that the Bees may go up with their Conveniency. Next Morning you'll find a dead King lying in the empty Hive; but becauſe, even in this Caſe, they will ſometimes fight, tho' very rarely, therefore 'tis a better Way to ſpread a Cloth upon the Ground, to take, betwixt your Hands, the Hive, wherein the Swarm is that you would join to the other, to give it a Stroke upon the Cloth to make all the Bees fall out of it, to ſet the other Swarm over it immediately, and to leave them to go up. If any Bees remain in the other Hive, lay it down with the Edge of it to the Entry of the full Hive, that they may go in with the reſt. This puts them in great Confuſion, and puts fighting out of their Mind.

158. But a better Way yet, if both Swarms come off about the ſame Time, is to join them together as you was directed, in the Caſe of a Swarm divided, and hived before the other Hive ſwarmed; then, when it is hived, carry it to the firſt, and put it below the Hive, if it can be done; if it cannot, take any of the Ways with it aforeſaid.

159 Theſe are the Ways of putting Hives together, which may be very well done, tho' they are not ſwarmed at one Time, for a young Hive may be put to any other Hive, whether it be of the ſame Seaſon or not, by the methods juſt now directed.

160. There is another Way of joining Swarms; it is this. So ſoon as the Swarm is hived, which you propoſe to put upon an older Hive, whether of the ſame Seaſon or not, take the old Hive, as if it were an empty one, and ſet over the young one. This I have not experienced, but believe 'tis the beſt Way, becauſe both Hives being thereby put in Confuſion, they will be the leſs apt to fight, and they are leſs diſobliged at an Injury in the throng Time of their Work, than when they have left it off, or before they begun it, and have their Guards ſet. As for theſe Bees that are abroad when you lift their Houſe, they will either fly about the Place where the Hive ſtood, till the new Swarm be gone up, when you may bring the Hive again to its Place, or they'll find out the Place where it was carried to, and go to it, or elſe they'll go to ſome other Hive, which is no great Inconveniency; but if the young Swarm has gone a great Way off, or to ſome high Place, which makes it inconvenient to carry the old Hive to it, then you muſt take ſome of the other Methods.

161. There is not ſuch a Nicety to be obſerved in putting back an Hive to the Hive it came from, as there is in joining two other Swarms together, for there is no more to be done in the firſt Caſe, but to ſhake them out of their new Habitation upon a Cloth, which has a Selvadge of it, fixed along the Edge of the Board, on which the old Hive ſtands, that they may thereon crawl

up

up and go home; or, to turn up the Mouth of the new Hive, and cauſe the Edge of it touch the Board of the other, and ſo let them go up that Way; or, if you pleaſe, let them hang upon the Twig or Branch on which they ſettled without an Hive over them, and then convey them at Night, and ſhake them off about the Door of the other Hive. But this Way is not ſo good, for when they are allowed to hang in a Cluſter, they are apt to go away, unleſs you water them now and then.

162. If your Hive ſhall be long in caſting, either by Reaſon of the Bees having been pinched for Food in the Spring, or by Reaſon of their lying out in Cluſters, then the beſt Way is to enlarge it, and ſo hinder them to ſwarm that Seaſon, for the young Hive would turn to ſmall Account, having ſhort Time to work; but the Bees thus kept together will make the old Hive a good one.

163. If they do not ſwarm before the End of *June*, you had beſt take this Way, unleſs they have been kept back with bad Weather, and you live among Muirs and Meadows. In this Caſe, if they go off in the firſt Week of *July*, they may do well, for the Swarm will be large, and the late Flowers will provide them plentifully.

164. When they ly out in Cluſters, ſome ſweep them down with Nettles, or other Things. I never found the Advantage of this, tho' I do not diſſwade from it. The moſt effectual Remedy that I know of is keeping the Winter-covers upon Hives, as I formerly mentioned, and keeping ſtrong Hives over Year, that they may be ſoon ready; for a Swarm ſeldom lies out in Cluſters in the Beginning of the Seaſon, becauſe, being ready againſt the firſt hot Weather, they then make way; but when the Weather grows ſo very warm, that they are not able to ſtay within, and yet are not ready to ſwarm, then they ly out.

165. If your Top-Swarm has got good Weather, and is full with Combs, and throng with Bees, and there is yet a great Deal of the Seaſon to come, then you ſhould enlarge

enlarge it, to prevent Swarming, which ſhould not be ſuffered. If the Seaſon is advanced to the Middle of *Auguſt*, or farther, and yet you are afraid that your Hive ſwarm, then you ſhould take five or ſix Bits of Wood, Inch thick, or a little larger, put them under the Hive, at equal Diſtances, and put Clay all around to fill up the Vacuities, which will give them more Air, and when working Time is over, theſe may be removed; but if the Hive is full by the End of *June*, or Beginning of *July*, you may enlarge it three or four Inches thick, concerning the Removal of this larger Eek, you ſhall be adviſed when I come to ſpeak in general of the removing of Eeks.

166. Some chuſe Eeks of one Kind, ſome of another. Straw made like the three or four loweſt Rows of an Hive does pretty well when well wrought, or a Wooden Machine made by a Couper, of the Dimenſion of the Mouth or Bottom of the Hive. Others take a Sieve or Riddle Rim, bend it till it comes to the exact Diameter of the Hive, and then fix it; but, becauſe 'tis difficult to make an Hive ſtand upon it, a better Way is to put two Rims together, one within another, which makes a broader Foundation for the Hive to ſtand on, but the beſt I know is made thus: Take a Piece of Deal-board, of an Inch Thickneſs, ſufficient Length, and what Deepneſs you pleaſe; then take a Hand-ſaw, and at every half Inch Diſtance ſaw it almoſt thro', which will make it bend into a Circle of what Dimenſion you think fit, if your Eek is deep, there is no Fault in putting Croſs-ſticks into it, the better to fix the Combs.

167. When you have made your Eek ready, and have cut the Door-way in it, you muſt have an Aſſiſtant; one of you muſt lift the Hive, and the other put the Eek under it. The beſt Time for this Operation is, when the Bees are throng at Work, then, the Hive being emptieſt, the fewer will be killed, and you will be in the leſs Danger of being hurt, for they are not then ſo injurious as when they are idle, and have their Guards ſet.

168. If

168. If you have given your Hive a large Eek, and the Weather proves to be ſo very bad, that they get it not near filled, then 'tis beſt to take it away, becauſe it would make them cold in Winter, and delays their ſwarming in the next Summer. The Way to do this, is, (after removing the Clay applied to fill up void Places, and make the Hive ſtand the firmer) to endeavour to get a Wier or ſtrong Pack-threed betwixt the Hive and the Eek; with either of theſe you may cut off the Combs, and carry off the Eek; but ſupport the Hive with Bits of Wood, half an Inch high, that the Combs left may be thereby kept from the Board or Stone.

169. I ſpoke in general of the killing of Drones; here I ſhall be more particular: Don't begin to kill them, till the Top-Swarm be gone off, leſt that protract the Flight of it; but immediately thereafter put a Crape or thin Cloth over your Hat, to keep it at a Diſtance from your Face, and yourſelf otherwiſe in Armour, the beſt Way you can; dreſſed for the Purpoſe, ſit down by the Side of an Hive, about Eleven o' Clock, the moſt ordinary Time of their coming out, and with a good ſharp Table-knife, you may kill at one Down ſitting more of them than would fill a *Scots* Chopin Stoup; this you may repeat for ſeveral Days ſucceſſively, from whence you may judge, whether it be an eaſy Matter for an Hive to maintain ſo many idle Deſtroyers, who, as far as I could ever diſcover, are good for nothing. Is it not plain, that an Hive that has caſt two or three Times liberally, muſt be in Hazard of being deſtroyed by theſe Gluttons, tho' in a ſtrong Hive their Maintainance is leſs perceptible?

170. When theſe idle Spend-thrifts are allowed to live till the End of *July*, or ſo, when the Working-bees give over hatching, fall ſeriouſly to the gathering of Honey, and then kill them of their own Accord, theſe Inconveniencies follow, 1*ſt*. They are all the while waſting and deſtroying the Honey. 2*dly*. The Working-bees ſpend their Time killing them; you'll frequently

ſee

ſee them haling them out, and ſtinging ſome of them to Death; but as to take this Way with them all, would be a hard and tedious Taſk, conſidering the vaſt Numbers of them in an Hive; they therefore take another Method. The Bees go up among the Combs, and defend the Honey till they ſtarve the Drones, which for a Time diverts them from gathering Honey; but an Hive, weak of Working-bees, is often of themſelves ſcarce able to overcome them; that this is the moſt common Way the Working-bees take of killing the Drones, will appear evident, if you make theſe following Obſervations.

171. *1ſt.* You'll find when an Hive is thus employed, it will be making very ſmall Progreſs in working, for few Bees remain for it, when ſo many are employed as aforeſaid; and one not experienced will be ſurpriſed to find this Hive doing ſo little, when others in the ſame Garden are ſo buſy. The Reaſon whereof is, that they either have not ſo much of this killing Work to do, or have more Bees to perform it.

172. *2d.* If you look into Galſs-hives, you'll obſerve the uppermoſt of the Boxes full of Drones, with few, if any Working-bees among them during all the Month of *June*, and the Beginning of *July*; but when the Time of Killing comes on, you'll ſee their Stations quite changed, the Drones all in the loweſt, and the Working-bees in the higheſt.

173. *3d.* If you lift up the Edge of a common Hive in the Month of *June*, or in the Beginning of *July*, you'll ſee only Working-bees, but if you raiſe it in the Killing-time aforementioned, you'll ſee the Drones lying on the Board or Stone with their Faces downward.

174. *4th.* When you kill them in *June*, you'll find the Kniſe cut them eaſily, and that they are ſo full of Honey, that the Working-bees throng about them, and ſuck it out of them, but when you kill them at the Time when the Bees themſelves kill them, they are dry and withered, and have no Honey in them. Nay, I'm of Opinion, that the Working-bees kill the Drones with greater

greater Eaſe than one would imagine, being perſwaded, that when they grip them by the Leg, or Root of the Wing, as you ſee is their Cuſtom, they have a Way of communicating Poiſon to them, which proves deadly, in the ſame Way that Spiders do to Flies.

175. From what is ſaid, 'tis plain, That if you have not killed your Drones until the Working-bees begin to do it; the beſt Way is to lift up the Edge of the Hive at Night, to ſweep out theſe Drones with any Thing convenient, to put down the Hive again, and to ſhut the Entry of it immediately, killing them as they ſeek to get in, which makes ſhort Work.

176. If you live in a Soil of Ground, dry and early, when the Flowers are gone, which will probably happen in the End of *July*, or Beginning of *Auguſt*, carry your Hives, eſpecially the weak ones, to a muiriſh Place, at leaſt a Mile's Diſtance, that the Bees may feed on the Flowers of the Heath, and late Meadows or Hain'd, *that is*, kept Graſs; and, when they have given over Work, bring them home again; or, if you live in a muiriſh Place, carry them in the Spring to a dry and early Soil, and bring them back when the Flowers are gone.

177. The *Natural Hiſtory*, I have mentioned, takes Notice, that it was the Practice in *Egypt*, *Greece*, *Italy*, the Country of *Juliers*, and that it is the Cuſtom of *France*, even at this very Time, to travel with Bees far and near, by Land and by Water. The Accounts are curious.

178. Here, one reading the Manuſcript, made a Remark, which I muſt allow to be juſt: You have raiſed your Readers Curioſity, ſaid he, but taken no Pains to gratify it; and beſides the Story, (for I have read it) is not only entertaining, but may be uſeful; borrow it, continued he, for he has it from others, and whoſoever writes next upon the Subject, will poſſibly take ſome Thing from you. My Objection was, that the Account was long, and that I could not abridge it, without loſing ſome Part of the Meaning of the Author, and the Beauty

ty of his Expreſſions: Then take it all, replied he, you'll find it the beſt Way: So hoping you'll be of this his Opinion, you have the Story as follows.

179. *Eugen.* "Spite of the Ignorance and Ruſticity "which have got Poſſeſſion of *Egypt*, there remain in "it ſeveral Foot-ſteps of the Induſtry and Skill of the "ancient *Egyptians*. One of their moſt admirable Con- "trivances is, their ſending annually, the Bees into di- "diſtant Countries, in order to get Suſtenance, at a "Time when they could not find any at home, and af- "terwards to bring them back, as the Shepherds ſhould "travel with their Sheep, and make them feed as they "went along. The Inhabitants of lower *Egypt* obſerv- "ed anciently, that all the Fruits of the Earth ripen- "ed ſooner in upper *Egypt*, than in their Parts, which "made a Difference of above ſix Weeks, between the "two Countries. Hence they were prompted to make "their Bees, if poſſible, reap an Advantage from this "Interval; or, in other Words, to procure them Food "ſix Weeks ſooner, than they would have done in their "native Place. The Expedient made uſe of by them, "for the Purpoſe we are ſpeaking of, is employed in this "Age. About the End of *October*, all ſuch Inhabitants "of Lower *Egypt* as poſſeſs Hives, embark them on the "*Nile*, and convey them upon that River, quite to up- "per *Egypt*, they obſerving to arrive thither at the Time "when, the Inundation withdrawing, the Lands have been "ſowed, and the Flowers begun to bud." *The Hives having come to this Part of* Egypt, *are there placed pyramidically in Boats prepared for that Purpoſe, after being marked and numbred by the ſeveral Owners who ſet them there. In this Place the Bees feed in the Field during ſome Days. Afterwards when 'tis to be ſuppoſed they have got in all the Honey and Wax that could be met with within two or three Leagues round, their Conductors convey them in the ſame Boats, two or three Leagues lower, and there leave the laborious Inſects ſo long Time, as is neceſſary for them to collect all the Riches on the Spot in queſtion.* "Thus the nearer they come to the Place of their Abode,

"the

" the Earth forwards its Productions, and the Places " flouriſh in Proportion; ſo that we may then ſay of " the Bees, with ſomething more Truth than we ob- " ſerve with regard to the Ladies; that Flowers ſprung " up under their Feet." *In fine, about the Beginning of* February, *after having travelled thro' the whole Length of* Egypt (*gathering all the rich Produce of theſe delightful Banks of the* Nile) *they arrive at the Mouth of that River towards the Ocean; whence they ſet out and return to their reſpective Habitations. For Care is taken, to ſet down exactly, in a Roll or Regiſter, every Diſtrict from whence the Hives ſet out in the Beginning of the Seaſon, their Numbers, and the Names of the particular Perſons who ſent them; as likewiſe the Mark or Number of the Boats, in which they were placed, according to their ſeveral Habittations* *.

179. *Clar.* "It muſt be a ſingular Spectacle to a " Traveller, to view whole Fleets of Bees, ſailing pom- " pouſly on this noble River. *Cleopatra*'s Fleet which " went to meet *Mark Anthony* was more gaudy indeed, " but then it did not reflect ſo much Honour on the " Underſtanding of the *Egyptians*. But I have heard " of ſomething ſtill more ingenious, with regard to our " Inſects; if we may credit what we are told in *Spectacle* " *de la Nature* †. 'Tis there declared, that the *Egyp-* " *tians* had found the Secret of giving an Education to " Bees, ſuch as few Animals are capable of acquiring: " That they had Shepherds, who led them to Paſture, " in the ſame Manner as a Shepherd leads his Flock; " that the Bees more tractable than the laſt mentioned " Animals were prompted merely by a Whiſtle, to " leave their Hives, or return to them; to go from one " Meadow to another; to fly to the Banks of a Rivu- " let; in ſhort to follow their Leader, from Village to " Village, whither ſoever he might think proper.

* *Deſcription of* Egypt, *Tom.* XI. *Page* 24.

† *Tom.* III. *Page* 37. *in our* Engliſh *Tranſlation of this excellent Work, 'tis Tom.* III. *Page* 23. *of the* 8*vo. Edition.*

180. *Eugen.* " I alſo have heard this Relation, or ra
" ther little Romance; and I remember that the Author
" quotes, to juſtify his Aſſertion, a Paſſage from the
" Prophet *Iſaiah* *, and another from St. *Cyril*. How-
" ever, notwithſtanding theſe venerable Authorities, I
" believe we may doubt the Truth of this Aſſertion;
" and apply this Whiſtle to Sailors concerning the Ma-
" nagement of Boats; I mean, that it was uſed about
" ſailing; and other Ways to direct the *Egyptian* Mari-
" ners, rather than govern the Bees.

181. *Clar.* " But, *Eugenio*, if *Iſaiah* declares the
" very Words mentioned in *Spectacle de la Nature*,
" methinks we cannot but give Credit to them. Do
" you conſider that 'tis a ſacred Writer who ſpeaks?

182. *Eugen.* " I bear no leſs Reverence to this divine
" Book than St. *Jerom* did; and will obſerve to you
" (after him) that many Things are told in Scripture,
" comformably to the Opinion which prevailed in that
" Age; and not to the moſt exact Truth †. The ſa-
" cred Writers expreſs themſelves ſometimes ſuitable
" to the Notions of the Vulgar, rather than agreeably
" to the Accuracy of Phyſicks; and for this Reaſon,
" becauſe human Sciences are of little Conſequence
" with regard to the Knowledge of Juſtification and
" Sanctification; which is the only End propoſed by
" the Almighty in giving us the Scriptures. Bees, in
" our Age, would not be capable of receiving ſuch an
" Education; and 'tis more than probable, that thoſe
" of paſt Times were not better qualified to learn, than
" our preſent Inſects. But to reſume our Subject. *E-
" gypt* is not the only Country in which our Inſects are
" made to travel. *Alexander de Montfort* tells us that
" the *Italians*, who live near the Banks of the *Po*, treat
" the Bees in much the ſame Manner as the *Egyptians*;
" that they load Boats with Hives, and convey them
" to

* See *Iſaiah* v. 26. and vii. 18.

† *Juxta opinionem Illius temporis, & non Jucta quod rei veritas continebat. S. Hieron in L.* 28.

" to the Neighbourhood of the Mountains of *Piedmont*;
" that, in Proportion as the Bees gather in their Har-
" veſt, the Boats, by growing heavier, ſink the deeper
" into the Water; and that the Water-men determine
" from hence, when their Veſſels are loaded ſufficiently;
" and that 'tis Time to carry them back to the Place
" whence they came.

183. *Clar.* " This proves to me, how exceedingly
" advantageous it is for Perſons to live in the Neigh-
" bourhood of a great River, when their Fields are not
" very abundant in Flowers, or ſufficient to ſupport our In-
" ſects during every Seaſon. I conceive that Bees, by taking
" a little Voyage upon a River, and enjoying the Spring
" of a dry Country, with the Autumn of a fat ſhady
" Soil, may thus be ſupported the Year round. But in
" order to do this, the Owners of Hives muſt live near
" a navigable River, otherwiſe what I juſt now deſcribed
" would be defeated; and you know that many Places
" have not ſuch an advantage.

184. *Eugen.* " This Defect may be ſupplied by Land-
" carriage. *Columella* informs us, That the *Greeks* con-
" ſtantly conveyed every Year Bees, from *Achaia* to
" *Attica*; and this becauſe, that at the Time that the
" Flowers in *Achaia* are gone, thoſe of *Attica* began to
" blow. *Montfort* relates, That the People of the
" Country of *Juliers* uſed the ſame Practice; and that,
" at a certain Seaſon of the Year, they carried Bees to
" the Foot of Mountains covered with Thyme, and that
" of the wild Kind. I, indeed, borrow theſe Inſtances
" from remote Times and foreign Countries; but as
" People are apt to ſubſtract many Things from theſe
" Relations; I muſt give you an Example of what is
" done among ourſelves, in the Centre of *France*, and
" of which you yourſelf may be Eye-witneſs. One of
" thoſe Men born for the Improvement of Arts, and
" whoſe Name deſerves to be tranſmitted to Poſterity,
" Mr. *Proutaut* makes his Bees travel like the *Greeks*
" of *Achaia*. This ingenious Artiſt has ſet up a Ma-
" nufacture, for whitening Wax, in the Dioceſe of *Or-*

" *leans*,

" *leans*, and there keeps a great Number of Hives. " This Spot is one of thoſe in which Flowers become " rare or ſcarce very ſoon; and where few or none are " ſeen after the Corn is ripened. He then ſends his " Bees to *Beauce*, or *Le Gâtinois*, in caſe it has rain- " ed in thoſe Parts. This Journey is about Twenty " Miles, which he makes them take. But, if he con- " cludes that the Bees could not meet, in either of theſe " Countries, wherewith to employ themſelves advan- " tageouſly, he has then carried them into *Sologne*, a- " bout the Beginning of *Auguſt*; as knowing that they " there will meet with a great many Fields of Buck-wheat " in Flower, which will continue ſo till about the End " of *September*.

185. *Clar.* " I can eaſily conceive, that Hives may " be carried to a great Diſtance in Boats, This Car- " riage is gentle, and can hurt Bees very little. But " then, methinks, the conveying of them by Land, " muſt be attended with many Difficulties. In what " Manner does your Induſtrious Artiſt act on this Oc- " caſion? I preſume that he is not ſo polite as to con- " vey our Inſects in a Coach or Litter.

" 186. *Eugen.* The antient Hiſtorians had not ac- " quainted him with the Method, by which the *Greeks* " uſed to ſend away their Bees by Land: But here fol- " lows his Contrivance, which he practiſes with Succeſs. " The firſt Care is, to examine thoſe Hives, ſome of " whoſe Honey-combs might be broken or ſeparated, by " the jolting of the Vehicle; they're made faſt one to the " other, and againſt the Partitions of the Hive, by means " of ſmall Sticks, which may be diſpoſed differently, as " Occaſion ſhall ſhow. This being done, every Hive is " ſet upon a Packing-Cloth, or ſomething like it, the " Threeds of which are very wide: Then they turn up " the Sides of this Cloth, and lay them on the Out-ſide " of each Hive; and tie them together with a Piece of " ſmall Pack-threed, obſerving to wind it ſeveral Times " round; they afterwards place in a Cart, built for that " Purpoſe, as many Hives as it will hold. The Hives

" are

" are ſet two and two the Length of the Cart. Over
" theſe others are placed, which make, as it were, a
" ſecond Lay or Bed of Hives. Theſe muſt be always
" put topſy-turvy; 'tis for the Sake of the Honey-combs,
" and to fix them the better, that the Hives are diſpoſed
" after this manner; for ſuch as have no Honey-combs,
" or very ſmall ones, are placed in their natural Situa-
" tion: Care muſt be taken in this Stowage, not to let
" one Hive ſtop up another; it being eſſentially neceſ-
" ſary for Bees to have Air, and 'tis for this Reaſon that
" they are wrapped up in a coarſe Cloth, the Threeds
" of which were wove very wide, in order that the Air
" may have a free Paſſage, and qualify the violent Heat
" which theſe Inſects raiſe in their Hives, eſpecially,
" when they move about very tumultuouſly, as often
" happens in theſe Carts. Thoſe uſed for this Purpoſe
" at *Yevre*, hold from thirty to forty eight Hives. As
" ſoon as all are thus ſtowed, the Caravans ſet out. If
" the Seaſon is ſultry, they travel only in the Night;
" but, in cool Days they make a proper Advantage of
" them. You'll imagine, that they don't ride Poſt.
" The Horſes muſt not be permitted even to trot; they
" are led ſlowly, and through the ſmootheſt Roads. If a-
" ny Hives are void of Honey-combs; or have not ſuf-
" ficient to ſupport the Bees during their Journey, which
" is more than of one Day, they are made to ſtay in the
" Place where they happen to be. The Sort of Hives we
" are ſpeaking of, are taken out of the Cart; and are ſet
" upon the Ground; and after removing the Pack-cloth,
" an Aperture is made at the Bottom of every Hive,
" by which the Bees iſſue forth, in order to procure
" themſelves Proviſions abroad. The firſt Field they
" come to ſerves as an Inn to them. In the Evening,
" as ſoon as they are all returned, the Hives are ſhut
" up, and being placed again in the Cart they proceed
" in their Journey. When the Caravan is arrived at
" the Journey's End, the Baskets are ſet up and down
" in the Gardens, or in Fields adjacent to the Houſes.

" of

" of different *Peaſants*, who for a very ſmall Reward " undertake to look after them."

187. 'Tis now Time to think what Hives to keep, and what to kill; you know I have been all along adviſing you to preſerve the beſt, as thoſe that will turn to the beſt Account next Year. When you have killed the worſt, in early Places in *Auguſt*, in later in *September*, and in general when they have given over Work, you ſhould immediately take Care of the Preſervation of the Remainder.

188. Whenever you find your Bees giving over Work, begin to leſſen the Entries to their Hives by Degrees. This is a very neceſſary Thing in this Time of the Year; for if the Weather is fine, and the Proviſion ſcarce, the Stronger, as I have ſaid, will plunder the Weaker: To remedy which in the Beginning, the ſtraitening of the Doors is the beſt Expedient.

189. If you incline to keep an Hive that you ſuſpect to be weak, this is the proper Seaſon for feeding it, which you may do with the Dreg of the Honey of thoſe you have killed, obſerving the Directions I gave concerning this Matter for the Spring; only you are not now to give them a Doſe, and then to wait to know by the Weather, if it is neceſſary to give them any more; but you are to conſider what they will want, and to give it in Doſes, until they have got all you deſign; yet if at any Time you find Honey left over Night, you muſt remove it next Morning, and give them no more for a Night or two.

190. If you find it neceſſary to remove the Eeks you put to your Hives, this is the Time for it; if to continue them, to plaiſter up the Joinings, and all around the Mouth of every Hive, to keep the Rain from getting in.

191. When theſe Things are done, your Hives all very dry, and the Weather yet good, you muſt fit them for the Winter by putting Covers over them, or removing them to your Bee-houſe, to be hereafter deſcribed.

192. I have

192. I have now brought my young Practitioner thro' the whole Year with his Bees, have endeavoured to give him ſuch Directions as are neceſſary for every Seaſon, and when I have advanced any Thing that I have not fully experienced, I have told him ſo, in Hopes that others may make further Diſcoveries. Directions are indeed neceſſary for a young Beginner, but Application is the Life of all Buſineſs, the more he views and conſiders theſe wonderful and highly profitable Creatures, he will the ſooner learn the Husbandry of them, and become the ſooner and the better qualified to give Directions to others concerning them.

193. To ſuch as may be afraid to attempt this Part of Husbandry, by ſo many and ſo different Rules and Directions, I ſay,

194. 1ſt, There is no ſafe Way of coming to the Knowledge of any Thing of this Sort, without the Help of a great many Directions and Cautions: When you are reducing them to Practice, you will, on Occaſion, find Uſe for every one of them, and poſſibly wiſh for more: It is, without doubt, the Fault of the other Books upon this Subject, that they ſpend too much of the Reader's Time, being ſwelled with the ſpeculative Part, which enhances their Price, and give too few, and too general Directions; both which Errors I have endeavoured to avoid in this ſmall Treatiſe, that it may be the more generally uſeful, and become the Property of the meaner Sort, on a ſmall Expence.

195. 2*d*, Tho' there are many ſuppoſed Caſes and Objections, which may never fall in your Way, anſwered here; yet when any Thing extraordinary befals you in your Management, and perplexes you, you will then be glad of Directions concerning them. You know 'tis eaſy to manage Husbandry of any Kind, when the Seaſon and Circumſtances combine to favour our Deſign; but when 'tis otherwiſe, and Things begin to go croſs to our Wiſhes, then the Skill of the Husbandman is known by applying Rules ſuitable to the Occurrences that happen.

196. So far am I from thinking, that this Husbandry can be made too plain, or that 'tis a Fault to multiply the Number of different Directions concerning it, that I ſhall for further Inſtruction to my Readers, and partly to ſatisfy the more curious Part of them, add a few general Queſtions and Anſwers, after I have let them know my Opinion concerning the Boxes, that have been of late ſo much commended, and are called by the Name of Colonies.

197. I own the Invention is curious, and that the Deſign to ſhew a Way how to ſhare of the Fruit of the Bees Labours with them, without putting them to Death for it, is ſo far inexceptionable, that I like the Humanity of it, and wiſh I could find it as profitable as it is merciful. The Favourers of this Invention alledge that when there is ſo great a Number of them in one Family, they turn to much better Account, than in the ordinary Way: I ſhall endeavour to ſhew, that the Ends they propoſe are not obtained by their Method.

198. *1ſt.* I'm afraid 'tis found by Experience, that Bees, eſpecially in this Country can do little more than maintain themſelves thro' the Year, even in the beſt Seaſons. How then can you expect any great Share of their Honey without killing them? 'Tis for this Reaſon that I have adviſed my young Beginner to keep always his richeſt Hives over Year, becauſe ſome Seaſons will put the beſt of them to a Pinch.

199, *2d.* The Method ſeems contrary to their Way of doing; for they lay their Eggs and hatch their Young in the middle Parts of the Combs and Hives, whereby they get them the better ſurrounded and defended againſt all Hazards and Inconveniencies, and by the greater Heat there, than more outwardly, they get them the ſooner and ſafer hatched; yet I ſhall not deny, that in the warm Months of *June* and *July*, Mr. WARDER may have ſeen ſome of the Brood in Cells at the Windows; but, I think every one of the Family ſhould know beſt what Part to act when they are all in one Houſe together; whereas when they are obliged to perform this Office in

two

two or three diſtinct Boxes, they are not capable to execute it ſo well.

200. *3d.* 'Tis difficult, and ſometimes impoſſible, to keep them from ſwarming or caſting.

201. *4th.* The Honey you get this Way is both very little in Quantity, and very bad in Quality, being full of young Bees, Bee-bread, and ſuch Stuff as you commonly find in old Hives.

202. *5th.* Seeing it is evident, that the Thriving and Succeſs of the whole depends on the Welfare of a ſingle Bee, the Sovereign, I humbly think 'tis too great a Riſk to hazard a numerous Colony, and ſo great a Stock upon his ſingle Life; beſides, it ſeems to be putting too much Generation-work upon him: Tho' my Opinion is, that the Product of Bees is much better, in Proportion, when there is a greater Number of them together, than when there are but few, yet I do not ſay, but we may exceed, eſpecially when they are diſpoſed in three diſtinct Families. Then the Sovereign can neither have ſo diſtinct Knowledge of what his Subjects are doing, nor can they be ſo eaſily ſatisfied, as otherwiſe, of his Welfare; which Uneaſineſs on both Sides will, no doubt, give them great Diſquiet, and oblige them to travel frequently from one of theſe Apartments to another, which muſt exceedingly retard their Work.

203. I might advance ſeveral other Arguments againſt this Way of Colonies, ſuch as the Difficulty of getting the Bees to ſeparate from the Honey, when you take away a Box from them, which is not ſo eaſily done as the Favourers of that Project would make you believe: But I ſuppoſe I have ſaid enough, to diſpoſe you to think twice, before you hazard much upon it, and theſe who are of another Opinion may try the Experiment when they pleaſe; I wiſh thoſe, who have done it, have fairly computed, and fully conſidered the Difference of the two Ways before they recommended Colonies. I come now to my general Queſtions, which I told you were partly curious, and partly uſeful.

204. 1*ſt*. Whether are they young or old Bees which make up young Hives?

205. *Anſw*. A young Hive conſiſts of a Mixture of both, and 'tis beſt for the common Good, when the Compoſition it pretty equal; for when too many young Bees come off to the young Hive, then the old Hive conſiſts almoſt wholly of old ones, and then in the End of *July*, when the old Bees die, you will ſometimes obſerve an old Hive, that looked very promiſing and thriving after Swarming, ſuddenly come almoſt to nothing.

206. On the other Hand, you will find a young Swarm in a hopeful Way, of making a ſtrong Hive for ſtanding out the Winter, which yet will, by and by, fruſtrate your Expectation, when the old Bees die; for thereby their Number is ſo impaired, that they are not able to do much good for that Seaſon.

207. Thus it is plain, that when a Swarm conſiſts of near an equal Number of young and old Bees, both the old Hive and itſelf bids faireſt to thrive.

208. 2*d*. How long do Bees live?

209. *Anſw*. The Bees that are hatched in the Spring, live until next Year about the End of *July*. Hence it is, that tho' your Hive be very throng, and appear daily increaſing, yet when this Time of Mortality comes, you will find them conſiderably decreaſe.

210. The Reaſon why they are more ſenſibly obſerved to die at that, than any other Time, is, Becauſe the greateſt Part of them are hatched in the Spring, and ſo they come to die in greateſt Numbers in that Seaſon: The reſt of the Summer their Hatching is more gradual, and ſo their Death is not ſo perceptible.

211. What was advanced near the Beginning of this Treatiſe concerning an Hive of Bees, who have loſt their King in Winter, or Spring, their dwindling to nothing by the End of *July*, is a Proof that they are no longer lived; beſides, if you view your Hive in the Beginning of *July*, you'll eaſily perceive great Numbers of them with Symptoms of old Age about them, having the Down worn from off their Back, and their Wings ragged;

ged; but if you obſerve them in *Auguſt*, after the dying Time is over, you'll ſee no ſuch Marks of old Age about them.

212. If my Readers would be further ſatisfied concerning this Matter, they may look what Dr. WARDER ſays upon the Head,.

213. 3*d*. Whether is it beſt to keep an old or a young Hive, and how long may an Hive be kept?

214. *Anſw*. I have already given you a general Direction to keep the ſtrongeſt, whether old or young, and ſhall not here reſume the Reaſons; but when the Queſtion is betwixt a young and an old Hive of equal Weight; then I anſwer, 'tis beſt to keep the old one, and that for theſe Reaſons. 1*ſt*. The young one will afford you the beſt Honey, by very far. 2*dly*. The old Hive will yield you as good a Product, which I think will determine you to keep it.

215. As to the ſecond Part of the Queſtion, I anſwer, That I do not know from Experience how long an Hive may be kept; but I am of Opinion, that it may be preſerved a long Time; for 'tis plain from what has been ſaid, That it does not labour under the Inconveniency generally believed, that the Bees grow old and lazy; it being made appear, that they are as young in an old Hive as in a young one.

216. Thus you ſee, that, by keeping old Hives, you have this Advantage, that you get Virgin-honey for many Years together, which will give you more Profit if you ſell it, or Pleaſure if you eat it, than the Honey of the old Hives would do, and yet the old Hives will ſerve full as well for Propagation; but yet, if the ſame Hive is kept for many Years, the Combs will become black and thick, with the Skins left by the young Brood, the Straw of the Hive will be apt to rot and become muſty, and theſe muſt prove inconvenient, offenſive, and infectious to the Bees; as alſo the Sticks within the Hive will moſt probably fail, and become inſufficient for ſupporting the Weight they have to bear.

217. 4*th*. What Weather is beſt for Bees?

218. *Anſw*.

218. *Anſw.* Calm warm Weather with ſoft Showers now and then: Wind is very deſtructive to them, not only by retarding them in their Work, but it even beats them againſt Walls and Trees, *&c.* and kills many of them: Cold Weather pinches them ſo that they cannot go abroad, and when they do, they find not the Flowers ſo rich of Matter, for Honey or Wax, as when the warm Beams of the Sun play upon them, and exhale that Moiſture which is fit for their Purpoſe.

219. Soft Showers likewiſe contribute much to their Advantantage, eſpecially in Soils that are naturally dry and ſandy. There in Drought the Flowers grow ſo dry and parched, that their Moiſture is quite dried up, the Bees find little Proviſion abroad, and ſo make ſmall Progreſs; but where the Soil is naturally moiſt, bad Effects by Drought are but rarely felt. Sudden violent Showers of Rain, but eſpecially Hail, is very prejudicial to them; for when a warm Blink of Sun-ſhine invites them abroad, and then a plump Shower ſurpriſes them, multitudes of them will thereby periſh, eſpecially if it is cold, or of Continuance; but if it blows ſoon over, and the Sun beats very warm again, this will tend greatly to recover them.

220. *5th.* What Fields and Flowers yield them moſt, and beſt Matter for Honey?

221. *Anſw.* There are different Flowers in the different Seaſons, that afford them Plenty for both Honey and Work, ſuch as, early in the Spring, the Bloſſoms of Gooſe-berrie Buſhes, Sallows, Roſe-mary, the Plane-tree and Whins; theſe, as far as I remember, are of the greateſt Uſe to them, and afford them the moſt of their Food, and work early in the Year, tho' there are others that cannot be eaſily got in Plenty, as Crocuſes, black Hellibore, Imperial Crown, Scurvy Graſs, Wall Jelliflowers, and a great many more, all Flowering before the Middle of *May*.

222. The principal ones that ſucceed, are, the wild Muſtard, which is the Chief, the Apple, Pear, and other Fruit-trees, white Clover, Woad, Poppies, Garden Muſtard,

ſtard, Thyme, Sage, Hyſop, Kail or Coleworts of all Kinds, Turnips and Broom.

223. Then in the End of Summer and Beginning of Harveſt, the principal ones are Heath, Ragweed, Flax, Hemp, Lime-tree, and a great many Flowers in late Meadow-ground, and hained or kept Graſs. It is to be obſerved, that tho' moſt of theſe Flowers yield Work, as the Flowers of Furz, Broom and Poppies, yet ſome of them afford only Honey, ſuch as Clover, Gooſe-berries and Thyme.

224. From what has been ſaid, 'tis evident, that the Fields that abound moſt with theſe Flowers, are the beſt for Bees, and thus it is, That ſome Places of our Country are beſt for them in the Beginning of the Seaſon, and other Places in the End of it; for Inſtance, The Sea-coaſt, generally ſpeaking, affords them the earlieſt Flowers in greateſt Abundance; the hilly Grounds and Muirlands the lateſt; becauſe there the Heath and Meadows are moſt plenteous.

225. For this Reaſon, if any will give themſelves the Trouble, to remove Hives from the Sea-coaſt in the End of *July*, when the Flowers there are gone, to any other Place where are uncut Meadows or Heath, or both, they will find a great Advantage by it.

226. This a Gentleman, even of our own Country, has practiſed with very good Succeſs, and has found, that when his Bees had almoſt given quite over working, becauſe the Flowers were gone; upon his tranſporting them to Meadows or Heath-grounds, they have ſet to Work again as briſkly as ever.

227. For this Reaſon, when he lived on the Sea-coaſt, he uſed to carry his Top-ſwarms, the very Night they were hived, to ſome Place convenient for Muirs and Meadows, where he allowed them to ſtand until the Seaſon of their working was over.

228. He had two Advantages by removing the young Swarms rather than the old Hives. *1ſt*. They were eaſieſt carried, being lighter. *2dly*. They were not in Hazard of ſeeking the Way home again, which the old

old ones do, if they are not removed to a due Diſtance, which leads me to the ſixth Queſtion.

229. 6th, To what Diſtance will Bees fly for Food?

230. *Anſw.* They commonly fly to a Mile's Diſtance, and ſometimes two, as thoſe who live a Mile from Heath, may obſerve, by the Work their Bees bring home upon their Thighs, when the Heath is bloſſomed. You may know pretty well, what Flowers are blown in the Field, tho' you go not out of your Garden, for the wild Muſtard yields Work of a Colour, betwixt yellow and green, and the Duſt of the Flower paints them, eſpecially their Forehead, the ſame Colour: Broom-bloſſoms yield bright yellow Work, and dyes their whole Body that Colour: The Heath affords Work of a faintiſh Green, or Aſh-colour, but does not dye their Bodies.

231. Bees have been found in Heaths, at two Miles Diſtance from any Hive, tho' rarely, yet they can make little Progreſs, if they are obliged to travel a full Mile, and few Bees goes ſo far. Theſe that go cannot make many Journeys in a Day, the Diſtance being ſo great, and they are much expoſed to Accidents when ſo far from Home.

232. The main Deſign of this Queſtion being to know, to what Diſtance 'tis proper to remove Bees, either to prevent Fighting, as you was adviſed when treating upon that Head, or for getting more Proviſions againſt Winter, I ſhall ſpeak thereof as the Gentleman, juſt now mentioned, ſays he has Experienced.

233 The firſt Time he removed Bees, having carried them only half a Mile, he found that a great many of them returned, gathered in Cluſters upon the Stakes where the Board ſtood before the Removal, and when they could find no Lodging-place, ſome of them made their Way back to their own Hives, but the reſt, in a humble Way, begged Quarters from the Hives left in the Garden unremoved.

234. Next Seaſon he removed them a full Mile, and found, that ſome of them ſtill returned, but not in ſuch Numbers, as much to weaken the Hive or Hives they left.

leſt. They hovered about the Place from whence they were removed, and frequently reſorted to the reſt of the Hives, looking for their own Abode, but weary of their fruitleſs Endeavours, they took Lodging where they were made moſt Welcome.

135. The following Seaſon, he tried them at the Diſtance of a Mile and a half, and found a few return even from thence.

236. From theſe Obſervations he concluded, that they may with Safety be removed, if you take them a full Mile off, and that you will find Advantage by taking them further; for if you pleaſe to take the Trouble, to weigh two of your Hives, and remove one of them as directed, you will find that which was tranſported much heavier, in Proportion, than the other upon weighing them again. Now I humbly think that this Matter of the removing of Bees, has been pretty fully treated of in this and the former Pages.

237. *7th.* What Flowers yield beſt Honey?

238. *Anſw.* I ſhall not pretend to give my Reader full Satisfaction in this Matter, becauſe I neither know what is the beſt Honey, thoſe pretending Skill in that Affair being divided in their Opinions concerning it; nor can I tell what Sort of Honey every particular Flower affords; but I ſhall endeavour to inform, what Honey gives the greateſt Price in this Country, and what Flowers contribute moſt to the producing of it.

239. I told you before that Bean Bloſſoms, wild Muſtard, Meadows, hained or kept Graſs, and Heath, afford the moſt of our Honey in this Country. According as theſe are plenteous or ſcarce, ſo will the Colour of the Honey be found to be; that which is whiteſt is thought beſt, the further it recedes from that Colour, it is eſteemed the worſe.

240. There are two Sorts of wild Muſtard, the one commonly called *Skeldocks*, the other *Runches*. Some Fields will have Plenty of the one, and none of the other, *& vice verſa*. Skeldocks yield Yellow, Runches very white Honey, Meadows make white Honey, Heath reddiſh

reddiſh. Theſe Fields therefore, where only Runches abound among the Corn, and where no Heath is near, will produce very white Honey. If there is a Mixture of either the Heath or the Skeldocks, the Honey will be yellowiſh, but not ſo yellow as if there were no Runches.

241. In Places where both Runches and Heath abound, you may eaſily in the End of the Seaſon diſcern in a fine Honey-comb, the upper Part of it of a white Colour, the lower, which was laſt filled, and from the Heath, of a reddiſh Colour.

242. In Places where there were few Skeldocks, and not much Heath, but a great Deal of Meadow and kept Graſs, I have ſeen the Honey of a fine beautiful Colour betwixt green and whitiſh Yellow, and ſo in different Parts, the Colour alters as theſe Flowers prevail.

243. I remember no other Flower, that ſo much abounds, as to determine the Colour, except the Flower of the Ragweed, which in ſome Places is very plenteous, and may give it a yellow Colour, tho' neither Skeldocks nor Heath are near.

244. I ſhall here take Occaſion to ſpeak of the Conſiſtence of Honey, that which is hard, is moſt valued, *cæteris paribus*, and juſtly ſo; let this be put to the Trial, and you will find that the thick, will ſweeten a great Deal further than the ſame Quantity of the thin.

245. There are two Things which have Influence on the Conſiſtence of Honey. 1*ſt*. The Weather. 2*dly*. The Seaſon of the Year. If the Weather is dry, the Honey will be of a harder Conſiſtence, and, on the contrary, when 'tis rainy, it abounds with watery Parts, which the Bees ſuck up with the Honey, and ſo it is ſofter.

246. Again, the Honey which is gathered early in the Seaſon, is harder than that which is gathered in the End of it; becauſe the Heat, both of the Sun and the Bees themſelves, has more Time to exhale the Water out of it, and ſo leave it harder than the other made thereafter.

247. Hence

247. Hence it is, that the Honey of old Hives is harder than of young ones; for you know much of their Honey is gathered early, even before the firſt Swarm goes off, which therefore cannot miſs to be thicker than the Honey of Hives of a ſhort ſtanding; ſo if there were not ſeveral other Conſiderations to caſt the Balance, the Honey of old Hives would be beſt.

248. *Queſt.* 8th. Can a Field be over-ſtock'd with Bees?

249. *Anſw.* No doubt but it can, tho' this happens more rarely than People imagine. You may eaſily believe, that the Flowers of a Field conſiſting of a Circle of two Miles Diameter, will not be ſoon exhauſted, or elſe it is a very barren Soil.

250. I have known, in a little Sea-coaſt Town, upwards of Fifty Hives all in a thriving Condition at one Time; now, how many may another be ſuppoſed to maintain, that has not the Sea to take up one Side of it? If this is duly conſidered, you need be in no great Fear of over-ſtocking your Ground. I ſay no more upon this Head.

251. *Queſt.* 9th. Will an Hive caſt a Top-ſwarm before it is full of Bees?

252. I anſwer in the Negative, never having obſerved a Top-ſwarm go off till the Hive was quite full, tho' every Body knows that it will caſt a ſecond, or third, when it is very far from being full. If it be here queſtioned, why I aſſerted that Bees cannot be kept from ſwarming, when they may be ſo eaſily ſupplied with an empty Box, before the reſt are quite full? I anſwer, That the giving them a new Box is not ſo properly an Enlargement of their Houſe, as adding another Houſe to their former one, and is much the ſame Thing as if you would artfully join an empty Hive, to the Entry of that one ready to caſt, with a Deſign to prevent the Caſting, which will not hinder it, for they will only uſe it as a Veſſel to convey them to their proper Apartment.

253. They like, as I ſaid before, to live together, till, being pinched for Room, they ſend off a young Fa-

mily to provide a Lodging for themſelves. But if you enlarge that Apartment after the uſual Manner, they will not Hive till they fill it up again; yea, tho' you continue to enlarge it from Time to Time, till the End of the Year.

254. *Queſt.* 10th. Which is the Way of the Formation and Progreſs of Bees?

255. *Anſw.* The Bee lays an Egg in the Bottom of the Cell, which ſoon comes to appear in the Form of a very ſmall Worm, lying in the Bottom of the Cell, from which it advances gradually with its Head towards the Mouth thereof, and by Degrees takes the Shape of the Bee, being all this While of a white Colour, and fed by the old ones, much in the ſame Manner that Pigeons and ſmall Field-birds feed their Young, till it arrives at a certain Degree of Ripeneſs. Then it is ſealed up in the Cell, in the ſame Way the Bees do the Honey, for two or three Days, or longer, in which Time it takes the Colour of a Bee, and then breaks thro', and goes abroad a ripe full grown Bee. Any Body who wants a further Deſcription of this, may conſult Dr. WARDER.

256. *Queſt.* 11th. What is the Uſe of the Bee-bread, and how prepared for that Uſe?

257. *Anſw.* The Bee-bread is for nouriſhing the young Bees, and is thus prepared: The old Bees put it in the Cells, and add a convenient Proportion of Water and Honey to it, which being wrought up to a certain Degree of Fermentation, it becomes proper Food for the Young, and is given them in the Way ſet forth in the Anſwer to the former Queſtion; but, as it is evident, that a great many young Bees are hatched ſo early in the Spring, that they cannot get Bee-bread of the ſame Seaſon, their Proviſion muſt certainly be, by a Store laid up in the End of the Year preceeding, which is done by half filling a great many of the Cells with it, and filling them up with Honey, which preſerves it freſh and fit for Uſe. This they take and mix in the Manner juſt deſcribed,

deſcribed, which feeds the Young, till Proviſion can be found abroad.

258. *Queſt.* 12th. What Size of Hives is beſt?

259. *Anſw.* You have been told that the ordinary Size in our Country, contains about a Peck and three Lippies of Barley *Linlithgow* Meaſure, and long Experience hath taught, that any Size much below or above that, does not anſwer ſo well; for when they are very ſmall, 'tis leſs worth while to attend them, and when very big, they do not produce in Proportion to their Bigneſs: Beſides, there is too great a Hazard run upon the Life of a ſingle Bee (the King) as was obſerved in one of the Objections againſt Boxes.

260. *Queſt.* 13th. In what Time does a Bee come from an Egg to full Maturity?

261. *Anſw.* About ſeventeen Days; for I have known a firſt Hive, in warm Weather, caſt a Swarm in that Time, which is a Proof of it.

262. *Queſt.* 14th. What Number of Bees may be ſuppoſed to be in an Hive?

263. *Anſw.* I reckon, that in an Hive of the ordinary Dimenſion aforeſaid, there will be about twelve Thouſand Bees; but before Caſting, I doubt not, but there will be double that Number: If you'll conſider, how long every Bee muſt take to bring in her Loading, and yet what vaſt Numbers of them are always going in and out at the Entry to the Hive, you'll eaſily be induced to think ſo. The Way to number them is: After they are killed, to fill any ſmall Veſſel full of them, try how many it contains, and then try how often the whole fills it.

264. *Queſt.* 15th. What is the Bee-bread, and whereof are Combs made?

265. In Anſwer to theſe Queſtions, I ſhall only give you the Opinion of others: As they do not agree, I leave you to form a Judgment thereof to yourſelf, from their Opinions and your own Obſervations.

266. Mr. *Chalmers* in his Dictionary, ſays, "That "Wax is not the Excrement of the laborious Bee, as

"the

" the Ancients, and after them many of the Moderns " have imagined. 'Tis properly a Juice exuding out of " the Leaves of Plants, and adhering to the Surface " thereof, from which it is ſcraped off by the Bees with " their rough Thighs, to build their Cells withal; *Boer-* " *haave*, ſays he, is of this Opinion.

267. " Again, ſays Mr. *Chalmers*, The Wax being " a hard Subſtance, is gathered only by the Fore-legs " and Chaps, conveyed thence to the Middle-legs, and " thence to the Middle-joints of the Hind-legs, where " there is a ſmall Cavity, like the Bowl of a Spoon, to " receive it, and where it is collected into Heaps of the " Shape and Size of Lentils.

268. " The Bee arrived at the Hive with its Load of " Wax, finds ſome Difficulty of unburdening itſelf of ſo " tenacious a Matter; frequently being unable to lay it " down, it calls for Aſſiſtance by a particular Motion of " its Legs and Wings, upon which a Number of its " Companions ſtraight run to its Succour, and each " with his Jaws takes off a ſmall Quantity of Wax, o- " others ſucceeding till their loaden Fellow be disbur- " dened."

269. The Author of a ſmall Manuſcript gives the following Anſwer to both theſe Queſtions. " The Bee- " bread, ſays he, is the Farina, or Duſt of the Flowers, " which they gather in Mouthfuls. Then they take Wing, " and in Time of flying take it out of their Mouth " with their Fore-legs, and put it upon the Thighs of " their Hind-legs. Then they pitch again upon the ſame " or another Flower for another Mouthful, and repeat " the Operation ſo often, till they get a ſufficient Quan- " ty to carry home, which is always coloured accord- " ing to the Flower from whence they take it. This " Performance of theirs is eaſily perceived, when they " pitch upon a Flower that abounds with this Farina, " ſuch as the white Poppie."

270. "The Combs, by a great many People, are thought " to be made of this Bee-bread, which they carry in upon " their Thighs; but, tho' 'tis no Wonder that Beginners

" fall

" fall into the Miſtake, 'tis ſurpriſing that any who pre-
" tend to write on this Subject ſhould fall into the Blunder,
" particularly Mr. *Bradley*, who ſays, in the firſt Volume
" of his Book, That the Wax is the Duſt of the Stami-
" na of the Flowers; and in another Page alledges, they
" keep a Part of this Wax in their Cells for making more
" Combs, and for ſome other Purpoſes: His Error plainly
" appears from the following Obſervations.

271. 1*ſt*. "The Bees of a new caſt Hive bring nothing
" home upon their Thighs for ſome Days; and yet, if
" you look into it, you'll find a good many Combs made.

272. 2*d*. " Theſe Combs are all pure White, which
" they would not be, if made of Stuff of very different
" Colours.

273. 3*d*. "If you take this Subſtance which they bring
" upon their Thighs, and try it with Fire, it will neither
" melt nor burn, as the Wax does, and in cold Water
" it diſſolves, which Wax does not.

274. 4*th*. " To what Purpoſe would they bring ſo
" much Wax to an Hive, that is as full of Combs as it
" can hold, and yet every Body knows that they are as
" buſy bringing home Loads on their Thighs to old Hives,
" as young?"

275. A curious Bee-maſter, in the Way of Boxes with Glaſs-windows, ſays, " He has often obſerved theſe
" induſtrious Creatures take an admirable Method of
" unloading themſelves. By their two Foremoſt-legs
" they hing, ſays he, upon the Edge of an empty Cell
" above them, join their two Hindermoſt-legs together,
" thruſt them into an empty Cell below, and with the
" two Middle-legs ſcrap off their Burdens, which drop
" into the ſaid empty Cell; then away they fly, and
" other Bees come and diſpoſe of it in a more compact
" and orderly Manner. Thus they continue, ſays he,
" to repeat theſe Operations, until the Cell is full;
" but perhaps this they only do when the other Bees
" neglect, or rather have no Time to give them Aſſiſt-
" ance."

276. Now

276. Now I proceed to inform my Reader, whereof the Combs are made, which is out of a Subſtance they carry home in their Bellies; but whether this is a peculiar Juice they get in particular Flowers, or if it is a Compoſition of ſeveral Juices, ſo prepared in their Bodies, as diveſts it of Sweetneſs, and brings it to a due Conſiſtence, I ſhall not pretend to determine. Whatever it is, 'tis plain they bring it out of their Mouths, and apply it round the Edge of the Cell, much in the ſame Manner as the Swallow puts the ſoft Clay round the Brim of its Neſt, when it builds it.

277. This Performance may be ſeen by lifting up the Back-part of an Hive, when the Bees are throng at Work, where you may perceive a great many of them ſo employed at the ſame Time, in the moſt agile Manner you can conceive, whilſt others, in a more compoſed Way, are giving the Work the finiſhing Stroke, by bruſhing and garniſhing it over with their forked Tongues, and in this ſurpriſing Architecture of theirs, there are ſeveral Things very remarkable, ſuch as,

278. *1ſt.* The Hexagonal Figure of every Cell.

279. *2d.* How exactly they place the Bottom of every Cell upon the Partition in the Middle of the Comb, not oppoſite to the Bottom of thoſe Cells on the other Side of the Partition; but, on the contrary, the Bottom of the one that is oppoſite to the Side-walls of the other, which tends much to ſtrengthen the whole Fabrick; and all this exact Structure is framed, for the moſt Part, in the Midſt of a Throng, and in utter Darkneſs.

280. *3d.* Theſe Combs that are deſigned for receiving and keeping the Honey, which are principally thoſe next the Hive, have their Cells framed not directly Horizontal, but inclining a little upward for keeping the Honey from falling out, whilſt the Cells of the other Combs in the Middle of the Hive, deſigned for propagating the Young, ly directly Horizontal as fitteſt for that Purpoſe.

281. *Queſt.* 16th.

281. *Queſt.* 16th. How much Honey will a good Hive gather in a Week of good Weather?

282. *Anſw.* When the Bees are intent upon gathering Honey, and are not much employed in any other Affair, they will make a *Scots* Pint, or five Pounds *Dutch* Weight.

283. *Queſt.* 17th. Can Bees uſe any other Thing for Food but Honey?

284. *Anſw.* No doubt they can, ſuch as Syrups, Worts, and Decoctions of ſeveral other ſweet things, but I do not adviſe the Uſe of theſe but in abſolute Neceſſity, becauſe I know not but they may be hurtful to their Conſtitution, and ſo apt to bring Diſeaſes on them.

285. *Queſt.* 18th. What Number of Hives may be kept over Year in a Bee-Garden in the Country, and what, by a modeſt Computation, may be reckoned the Product of theſe Hives for a Year?

286. *Anſw.* If you ſet a aſide twelve to keep, which is certainly a very moderate Number, you may next ſeaſon look for twelve at leaſt to kill, and twelve more to keep again. Theſe you kill, you may well ſuppoſe to afford four *Scots* Pints of Honey each, in all Forty eight Pints, which, at 3 *s.* 4 *d. per* Pint, is eight Pounds *Sterliug*. If you incline to keep Twenty four, which is ſtill a moderat Numbere, then you may Expect a proportional greater Profit, ſixteen Pounds.

287. It may likewiſe be ſuppoſed that a Hive that had four Pints of Honey in it, has alſo one Pound of Wax *Dutch* Weight, which, at one Shilling *per* Pound, is, for the Twenty four Hives, 1 *L.* 4 *s.* and which added to the ſixteen Pounds makes 17 *L.* 4 *s. Sterling*. No ſmall Sum to begot yearly after ſome Years, on no Expence but the Price of an Hive or two at the Beginning, (for it ſhall be herein after ſhown, where a fund will ariſe for the Price of Hives and other Incidents) and that by every Body who lives in the Country, with ſmall Trouble, and little Avocation from other Buſineſs.

288. Dr. Warder, propoſes the keeping of one hundered and ſixty Hives: But this might cauſe great

Confuſion

Confuſion, for let it only be ſuppoſed that a third, a fourth, a fifth, or even a ſixth of that Number ſhould Hive in one day, which may very probably happen, what a Diſorder would there be, how many Inconveniencies would follow? ſuch as two or three Swarms going together; others dividing, and not knowing for the Throng how to join again; others flying quite away, while you have not Time to ſtop their Flight. Theſe or ſeveral other ſuch like Accidents might fall out.

289. If any object that the Calcul of Profite is too low, and ſay, that one Hive with another, two might have been reckoned to produce three; I anſwer, I chuſed to be moderate, that my Reader may be agreeably disappointed, and that a ſeparate Fund may ariſe, out of the additional Profits, for anſwering the Price of Hives and Incident-Charges.

290. Here I ſhall give Directions concerning the killing of the Bees, taking the Honey, and preparing and uſing the Wax, which makes a conſiderable Article in Commerce; the Conſumption thereof, thro' the ſeveral Parts of *Europe*, being very great.

291. As to the killing of the Bees, the beſt Way is with Brimſtone, whereof melt a proper Quantity in an Iron Laddle over a ſlow Fire, then take ſome pieces of Linen Raggs, and dipp them one after another in the melted Brimſtone, twiſting them about till they grow cold and firm, cut them in Pieces about three Inches long, then take three green Twigs and cut a ſlit in the End of each of them, into which thurſt the Brimſton-Match; then dig a Hole in the Earth near the Hive you are to kill, about a foot deep, and almoſt as wide as the Brim of your Hive, then thurſt your three Twigs, with the Brimſton-matches, into the ſide of this Hole at different Places, more then half Way to the bottom, and when you have kindled the Match, lift your Hive, and ſet it over the Hole, Puting the Earth round it to keep in the Smoke, for Ten or Twelve Minutes, in which time you are frequently to beat the Hive on all ſides with the Palm of your hand, to cauſe the Bees fall down.

292. All

292. All your Utenſils for the Honey having been before prepared, ſuch as large Pewter-diſhes, Sives, Knives, and Spoons, you are immediately to fall to Work, while the Honey is warm and thin, and having pulled out the Sticks, the great Ends whereof I directed to be left without the Hives, you are next to take out the Combs one after an other, which you are to give to different hands ſome whereof are to be employed in cutting off the waſte Parts of the Combs; and ſeparating thoſe Parts of them which are ſtuffed with Bee-bread, from thoſe which contain the pure Honey, while others are cutting down theſe pure Honey-combs in thin Slices into the Sives, firſt, obſerving to cut off all the ſealed Mouths of the Cells, ſo as the Honey may come the ſooner out and run thro' the Sives, which are to be ſet upon the Sticks you drew out of the Hive, laid over the Pewter-diſhes; which Sieves may be made larger and wider in the Holes, than thoſe commonly called Sowen [Flummery] Sives: For altho' Bits of the Wax or Combs go thro', they do no Harm to the Honey, but come up in a Scum upon the Top; but by all Means take Care to keep your Honey free from Bee-bread.

293. When the moſt of it is paſt thro' the Sives, and it begins to drop very ſlow, you may put what you have got in convenient Pots, and ſet the Diſhes and Sives before a moderate Fire, now and then ſtirring up the Combs with a Knife. The gentle Warmth will make it paſs the better; but you'll get more good Honey, if you put a Plate over a Veſſel full of very hot Water, and the Sive with the Combs upon the Plate; for the Heat will be communicate to the Combs, and make the Honey drop the more freely, without melting the Combs: The Plate ſhould cover the Veſſel containing the Water, and the Wax and Honey in the Sieve the Plate as near as can be; and when no more will come, put the Combs in a Pan over a ſlow Fire, and wring out the reſt with your Hands, which keep for feeding your Bees.

294. A Lady of my Acquaintance informs me, that ſhe uſes to purify Honey, by ſetting a Can with it on a

Matt of Hay or Straw, for Fear of breaking the Can, in a Kettle, Pot, or Pan full of Water, putting the Kettle with the Can on the Fire, and boiling the Water, which after a competent Time, melts the Honey; and as it melts, and thereafter cools in the Can among the Water, throws up Wax and Refuſe; which being ſcummed off, the Honey thus purified, becomes more medicinal, looks better, taſtes ſweeter, is leſs apt to cauſe Colicks, and proves qualified for keeping many Years; whereas this being neglected, it often ferments in Summer, and is damnified.

295. For preparing the Wax, take thoſe Balls or Globules which are wrung out from the Dreg of the Honey, and put them in a clean Kettle, or Pan over a moderate Fire, with a ſufficient Quantity of Water, always ſteering it about till it boils, and when you find it all melted, take it out by Laddle-fuls, putting one or two at a Time in a large Bag, ſewed in the Shape of a Funnel, commonly called *Hypocrates's Sleeve*, made of thin ſtrong Canvaſs, and ſo long as the Upper-part may come over the End of a Deal-board, which is to reſt upon your Breaſt, with the other End in a Veſſel fit to receive the Wax, which you muſt preſs out with a Piece of Wood, made for the Purpoſe, much after the Way that Tanners dreſs their Leather.

296. When you have got it all paſt in the aforeſaid Way, which I have found to be the beſt, gather it again, and put it in a clean Kettle, with a convenient Quantity of fair Water, and melt it ſlowly over the Fire, you may, or may not, put it again thro' the Funnel; but, ere cold, ſcum it with a Tyle, or Piece of wet Wood, and caſt it while yet warm in Wooden, Earthen, or Metaline Moulds, or in any Veſſel which gradually widens to the Brim, having firſt anointed it with Honey, Oyl, or Water, to prevent the Wax from ſticking; let it ſtand all Night, then take it out, and cut off the Refuſe with your Knife till you come at the pure Wax. Some to purify it, make uſe of *Roman* Vitriol or Copperas; but the true Secret is to melt, ſcum, *&c.* properly, without any Ingredients.

297. The

297. The beſt is that of a high Colour and an agreeable Smell, and that does not ſtick to the Teeth, when chewed; 'tis often ſophiſticated with Roſin or Pitch, coloured with Rocou or Turmerick; the Fæces remaining in the Bag after expreſſing the Wax, are uſed both by Surgeons and Ferriers with Succeſs againſt Strains.

298. The whitening or blanching of Wax is performed by reducing the yellow Sort, firſt into little Bits, or Grains by melting it, and throwing it while hot into cold Water, or elſe by ſpreading it into very thin Leaves or Skins, or cutting it into ſuch by a Knife or a Wheel.

299. This Wax thus granulated or flatted, is expoſed to the Air on Linen-cloths, where it reſts Night and Day, having equal Need of Sun and Dew; then they melt and granulate it over again ſeveral Times, ſtill laying it out to the Air in the Intervals between the Meltings.

300. When the Sun and Dew have at length perfectly blanched it, they melt it for the laſt Time in a large Kettle, out of which they caſt it with a Laddle upon a Table, dented over into little round Cavities of the Form of the Cakes of white Wax ſold by the Apothecaries, *&c.* having firſt wet theſe Moulds with cold Water, that the Wax may be the eaſier got out.

301. *Laſtly*, They lay out theſe Cakes to the Air for two Days and two Nights, to render them more tranſparent and dry. This Wax is uſed for the making of Torches, Tapers, Flambeaux, Figures and other Wax-works. It is alſo an Ingredient in Plaiſters, Cerats, and divers Pomatums, and Unguents for the Complection.

302. Now, I flatter myſelf, that the greateſt Part of my Readers will acknowledge, that, tho' I ſhould ſay no more, I have treated this Subject, in a Way more practical and uſeful than any other hath done; yet I foreſee that ſome will cry out, notwithſtanding of what I have ſaid concerning Mr. *Geddie*'s Invention; mercileſs, barbarous Man! Why are you for killing the Bees, thoſe wonderful and profitable Inſects, ſince many Ways,

Ways more advantageous, may be taken to ſhare the Profits of their Labours with them?

303. If any Method is even near as profitable as the killing Way, I wiſh it was univerſally practiſed; ſo, that you may know which is the beſt by different Experiments, which if made at one Time, in the ſame Garden, and with equal Prudence and Care, will the moſt ſurely determine which of the Ways ought to be taken, I ſhall firſt offer you Directions for keeping the Bees in Colonies or Boxes, with Glaſs Windows, without killing them, agreeable to Mr. *Geddie*'s Invention, for which he got a Patent from King *Charles*, you ſhall next have Mr. *Thorley*'s, as in his female Monarchy, and then the Author's of the Natural Hiſtory. The two laſt, ſo far as I know, are the lateſt Writers on the Subject of Bees.

304. If you are to try Mr. *Geddie*'s Way, an open Bee-Houſe, ſuch as Straw-Hives are commonly kept in, will not do. You muſt have one, to keep your Colonies in, cloſe with Doors both before and behind; for if your Boxes were expoſed to the Beams of the Sun, it would ruin your Colony, in hot Weather, by melting the Honey and Wax.

305. This Method is taken to prevent ſwarming, for Bees ſwarm generally for Want of Room, which they get by giving them another Box when the former is full: But it is here to be noted, that this does not always prevent ſwarming, tho' generally it does.

306. A Bee-Houſe fit for containing ſix Colonies or Boxes (which if full of good Bees, will at ſometimes employ eighteen Boxes) ſhould be twelve Feet long and two broad. In this Houſe all your ſix Colonies ſhould be ſet at an equal Diſtance one from another, but the two outermoſt no nearer to the Ends than four or five Inches: The Reaſon is, that you may conveniently put down your Hands, to take hold of the Handles of the Boxes for lifting of them.

307. Make a Frame for the Houſe in this Manner. Each of the two Ends muſt have two Pillars. The two to the one Side ſhould be each four Feet high, but the two

on

on the other muſt be a ſmall Degree higher, if you make the Houſe Tofall Way. Theſe muſt be faſtened together with a Piece of Board, about a Foot from the Ground for the Floor to reſt upon them, then, with thin Bits acroſs, fix them together in ſeveral Places: Next, faſten the two Plates of the Houſe, the one before and the other behind: They muſt be of whole Deal twelve Feet long and four Inches broad, with a Rabbet in the lower Side for the Doors to ſhut into: Nail Rafters to the Plates, and Proportion them in Number and Strength to the Weight of the Roof you intend to put on. The lighter the better if it hold out the Rain. Make four Doors for the Front, and four for the Back of the Houſe: Fix upright Pieces, where they will not incommode you in the Management of your Boxes, to faſten the Doors to. You may put Locks on them if you pleaſe, but they ſhould have Rabbets, made by cutting Channels in them, that they may go ſo over one another, that one Door may keep another faſt. In ſhort, this Bee-houſe muſt have Doors all along both before and behind, that you may open any Part of it as you have Occaſion, and theſe Doors muſt go as high as the Eaves of the Houſe will let them.

308. You muſt alſo have a Ledge, which muſt be made with great Care of a Board twelve Feet long, one Inch and Quarter thick and two Inches broad; it muſt have a Rabbet of Half an Inch for the front Doors to ſhut into, and to anſwer to the Rabbet in the Plate of the Houſe; but there is no Occaſion for a Ledge on the Backſide. The Floor muſt come to the very Outſide of the Houſe. And the Ledge muſt be nailed on all along to the very Outſide of the Floor; ſo when the Door is ſhut into the half Inch Rabbet, it will be even. Before you nail down the Ledge, you muſt cut out, in the under Side of it, ſix ſmooth Paſſages for the Bees to go out and in at, make them four Inches long and half an Inch high. Under each of theſe Holes you muſt fix a Landing Board wider than the Hole, at leaſt two Inches broad, and ſet it a little ſlopping, that the Bees may pitch upon it the more conveniently: The Floor muſt be ſupported in

two

two or three Places, or it will ſwag with the Weight, it will have to bear, and put all out of Order.

309. The Doors muſt be made of well ſeaſoned Wood, and ſo cloſe that it will not ſhrink in the Heat of Summer, and let the Bees, much leſs the Mice, go in and out at the Chinks, or any other Way, but through the Holes cut out for the Purpoſe in the Ledge under the front Doors.

310. The main Deſign of the Ledge is not, that the front Doors may ſhut into the Rabbet of it, but to make Lines of Communication from the landing Boards to the Boxes. And tho' an Inch would be ſufficient to contain Holes for the Bees to go through, and the Rabbet for the Doors to ſhut into, yet to prevent two great Inconveniencies, it muſt be two Inches broad.

311. 1*ſt*. The Glaſs-Window in the Foreſide of every Box, would then ſtand only half an Inch from the front Door of the Bee-houſe, which in very warm Weather would make the Bees ſo hot, that they would not be able to endure the Heat, or if they did, the Honey would run. In either Caſe the Colony would be ruined. But,

312. 2*dly*. A Straw-hive would come too near the Door, if the Ledge was but an Inch broad, for when you put it into your Bee-houſe, which you muſt do at firſt, as ſhall be ſhewn, there is a Neceſſity that the Entry to it touch the Hole in the Ledge, ſo the Belly of the Hive would ſo hang over it, that the Door of the Bee-houſe would not ſhut without thruſting back the Hive, which would occaſion ſeveral Inconveniencies, which are prevented by making the Ledge two Inches broad.

313. Beſides the Standards your Doors are to lock into, it is proper to have Haſps of Wood, ſix before and ſix behind, which will turn upon Nails, and by which you may keep the Doors ſo faſt in their Places, that the wet Weather will not by ſwelling, or the hot by warping, put them out of Order. Which Inconveniencies are alſo in a great Meaſure prevented by painting the Houſe well: This is likeways uſeful for the Preſervation of the Wood.

314. Take

314. Take care when making your Bee-houſe, to contrive the Doors ſo, that none of the Standards whereinto they are to lock, may be oppoſite to any Part of the Boxes, but exactly to the Spaces betwixt Box and Box.

315. The beſt Way to know exactly where to cut the Holes in the Ledge is, to take two Boxes, and placing one of them within four or five Inches of each End, make a Mark for a Hole in the Ledge exactly oppoſite to the Entry to each of theſe Boxes; mark alſo before altering theſe two Boxes, the Length of the intermediate Space betwixt them, which being divided into four equal Parts for the four Boxes remaining of the ſix, you ſhould make Holes in the Ledge for theſe four Boxes, oppoſite to the Middle of each of theſe four Diviſions. And then the Entries into the Boxes being placed to the Holes in the Ledge, the whole Boxes will ſtand at equal Diſtance from one another, the Breadth of all the Boxes being equal.

316. A Houſe for ſix Colonies will coſt very little more than one for two or three, but if leſs than ſix, I think three is the beſt Number, and any good Workman can eaſily vary the Rules for a greater Number to anſwer for a leſſer, *& e contra*.

317. The Doors and every Part of the Houſe ſhould be made ſo cloſe, that the Bees get not in or out, except at the Holes made in the Ledge on Purpoſe, becauſe Cloſeneſs not only defends them againſt the cold, but preſerves them from Thieves and Mice: Care ſhould alſo be taken that there be no Chinks, or any other Defects in the Boxes, that may let any of the Bees into the Houſe, for they would be loſt.

318. The Boards of the Floor ſhould be very ſmooth and even, that the Bees may not get out betwixt it and the Boxes, and periſh. The Cover of the Houſe ſhould be twelve Feet four Inches long, that it may come two Inches over each End, and the Houſe ſhould be ſtrongly faſtened, by large Poſts of Oak driven into the Ground at each Corner, to prevent its being blown down by high Winds.

319. For

319. For making your Boxes, with Iron-handles and Glaſs Windows, you muſt have ſlit Deals of the beſt kind, nine or ten Inches broad, and an Inch and Half thick, before they are ſlit, ſo that the ſlit Deal will hold about half an Inch when plained upon both ſides.

320. One of your Deal-boards muſt be ſlit into three: Theſe being thinner than the reſt, are to make Sliders for the Tops of the Boxes and Doors over the Glaſs-windows: You muſt alſo have ſquare Panes of Glaſs, five Inches broad, and ſeven Inches long, Trunk-handles of Iron, long Bits of thin Iron, or Tin five Inches long, and an Inch broad, ſome ſmall Hinges, Nails, and Sprigs.

321. Then let the Workman form a Mould, that he may make the Boxes the better, and exactly of a Bigneſs, to fit one another when they come to be uſed: The Bench ought to be very ſmooth, exactly even, and well plained; for if it is uneven, ſo will the Bottom of the Boxes, and conſequently be unfit for the Floor of the Bee-houſe; and whereas the Form of the Box ſhould be Eight ſquare, ſo muſt the Mould.

322. Upon the Bench, the Carpenter ſhould mark out, with his Rule and Compaſſes, an Eight ſquare of eighteen Inches Diameter, which is the Breadth of the Box: Then he ſhould fit ſmall Bits of Deal for a Mould within the Place marked out: Theſe Bits which need not be above half an Inch broad, being nailed down to the Bench in an Octagonal Form of ſeventeen Inches Diameter, the Box which is made on the Out-ſide of this Mould, will be eighteen Inches, or a little more, according as the Board the Box is made of is in Thickneſs.

323. Here take Notice, that this Mould is not to be taken from the Bench, till as many Boxes are made as are deſigned; for you'll find by Experience, that when they are all of one Bigneſs, and fit one another exactly, they will be uſed with much leſs Trouble, than when they are otherwiſe made, either thro' Ignorance or Careleſſneſs.

334. The

324. The Mould being made, take one of the thickeſt Deals; cut it into Lengths of eighteen Inches, and glue two and two together, to make the Tops of the Boxes, which muſt be eighteen Inches over; ſo having glued as many of theſe two Breadths together, as you deſign to make Boxes, then proceed to plane your Boards well on both Sides; and thereafter to ſaw out the Scantlings of the Boxes, which muſt be ſeven Inches and a Quarter in the wideſt Part, and ſix Inches and three Quarters in that Part that is to be the Inſide of the Box, the Edges being thus ſmoothed off with a Plane.

325. Set theſe Scantlings thus prepared upright, and ſtay them down to the Bench and Mould with Sprigs, and ſo you will find that Eight of theſe Pieces of Wood, will come round the Mould, tho' every Box muſt have but Six of them, becauſe the Squares before and behind muſt not be of theſe Boards, but framed with two Rabbets: One Inſide Rabbet, to receive the Glaſs in the Inſide of the Box, ſeven Inches long, and five Inches deep; and another Rabbet on the Outſide above the Glaſs, to receive a thin Door, which muſt be made to ſhut over the Glaſs-window, and hung to the Frame by ſmall Hinges, and muſt alſo be planed very thin; for the whole Frame containing the Glaſs, and this little Door, muſt be no thicker than one of the other Boards, and uſed as one of them in both the fore and back Part of the Box.

326. That you may conveniently open the Door when you incline to ſee what your Bees are adoing, and ſhut it again when you have done, a ſmall Button of Wood to turn upon a Nail, ſhould be therewith faſtened to the Side of it.

327. Now, when you have fixed theſe two Frames with Glaſs-windows, one before and another behind, fitted the ſix Pieces to them, and with Sprigs faſtened them together, then fit the Head, which muſt not be nailed on the Top of theſe Pieces, but cut exactly, and

with great Care let down within them, and then all the Pieces being well ſprigged to this Head, the Box is made, but not quite finiſhed.

328. Four Things remain ſtill to be done before 'tis compleated. A Hole is to be made in the Top of the Box with a Slider over it, and a little Slider under the Front-door; the Handles are to be put on, and two Sticks placed within the Box acroſs for ſupporting the Combs.

329. As to the Hole in the Middle of the Top, it ſhould be five Inches ſquare, and half an Inch on each Side of the Hole muſt be cut in Grooves for a Slider to run in, that when 'tis once faſtened in, it ſhall not riſe to come out, but only ſlide to and fro in order to ſtop, or leave open the Hole of five Inches ſquare, as Occaſion requires; for when the Box is to be the uppermoſt one, then the Slider muſt be thruſt home to ſhut the Hole; but then the middle or under Box muſt have this Hole open, the Shutter being drawn back, this Hole ſerving for a Communication betwixt Box and Box. To this End pare away with a Chizel a Place for the Slider, which muſt be at leaſt half an Inch wider than the Hole, and run in a Groove, made hollow on Purpoſe for ſhutting the Hole, or drawing back.

330. This Cutting on the Top of the Box muſt be as deep as your Slider is thick; but the beſt Way is not to have the Hinder-part of this Shutter of the whole Breadth of the other End, but cut to two Inches, which is ſufficient for driving it home, when you want to cut off the upper Box of Honey, and more convenient, than if it was left to the whole Breadth, and it muſt be ſo ordered in the making this Slider, that when it is brought quite back, this narrow End may be even with the Outſide of the Box, and two little Bits muſt be nailed, after the Shutter is made and put into its Grooves, on each Side of the narrow End of it, to fill up what is cut away therefrom, which will hinder it from falling out, and prevent the Bees from coming out at either Side.

The

The Slider ſhould be ſhaved away to a narrow Edge in the broad cutting End, and then have a thin Bit of Tin or Iron nailed on it; when, tho' it be not very ſharp, it will cut the Honey and Wax that is in the Hole.

331. The next Thing is a Slider in the Edge of the Box under the Front-window. That Square of the Box, where the narrow End of the broad Slider before ſpoken of is, muſt always be the Hinder-part, and this narrow End muſt always come over the Back-window; ſo under the contrary Window, which is the Front-window, there muſt be a Paſſage cut about half an Inch in Height, and four or five Inches in Length, and you muſt make a little Slider to ſtop this Hole alſo, when there is Occaſion, or as much of it as you think fit.

332. This little Slider muſt be cut with ſlopping Edges, and the Box where it is to go muſt be hollowed; ſo that when 'tis thruſt home, as 'tis always when a Box is raiſed, it may ſtop the Hole cloſe, and alſo be entirely of the Box, and not fall out. This Slider muſt be about ſeven Inches long, ſo as to come about two Inches without the Box, with a Notch cut near the utter End, to pull it out by when 'tis too far in, or to draw it out to its full Length, if there be Occaſion, without diſturbing the Bees.

333. Now, put the Iron-handles on the two Sides of the Box, that you may lift it conveniently, either when you ſtand before or behind it: Take Care that they be clinched faſt in the Inſide. 'Tis beſt to put them in the Middle, neither near the Top nor Bottom.

334. In the Months of *June*, *July*, and *Auguſt*, when the Colonies, by Reaſon of their continual Breeding, come to be very full, if the Weather is very hot and ſhowery, the Bees, by natural Inſtinct, ſenſible of their Danger, by being abroad in the Time of Rain, preſs home in ſuch a violent Haſte upon the leaſt Appearance of it, that they ſometimes ſtop the Paſſage ſo cloſe, that thoſe within are like to be ſuffocated for want of Air, which makes them ſo uneaſy, that they are like mad Creatures within the Box.

335. To

335. To remedy this, cut a Hole two Inches ſquare in the Back-part of it, about the Middle, and over this Hole in the Inſide, nail a Piece of Tin-plate, punched full of Holes as large as you pleaſe, provided the Bees cannot creep out at them; then make a very thin Slider to run in Grooves over this Hole on the Outſide, that when it is thruſt home, all may be cloſe and warm; and when there is Occaſion in violent hot Weather, it may be drawn back, that the Air may freely paſs thro' thoſe Holes, and the Diſorder aforeſaid, as well as their Swarming be prevented, or, which will do as well.

336. Bore Holes with a Piercer as thick as you can, in the ſame Place for two Inches ſquare, and put a Slider on the Outſide over theſe Holes. The drawing back of this Slider to let in Air, is a probable Way to prevent Swarming, till by the increaſing of their Numbers you are forced to raiſe the Colony upon another Box; the Manner how, and the Time when to do it, you ſhall find at large deſcribed in its proper Place.

337. The laſt Thing is to put two half Inch ſquare Sticks, made out of your Deal, acroſs in the Inſide of the Box, and the one two Inches above the other; the loweſt ought to be about two Inches from the Bottom, and both faſtened at the Ends, by driving a Nail thro' from the Outſide of the Box into each of the Ends, but not quite to the Head, that when you are going to take out your Honey, you may draw the Nails, and then the Sticks with the Honey will come eaſily out.

388. It may be obſerved on the foreſaid Deſcription of the Box. *1ſt*. That no one Thing directed can well be omitted. The Slider under the front Window is but a ſmall Part; and perhaps you may think it can very well be wanted, but it ſerves when robbing Time comes, to ſtraiten the Paſſage more or leſs as you pleaſe; yea, ſometimes you will be forced to thruſt it ſo far in, as only to leave Room for one Bee to go in or out at a Time, and when you raiſe one Box upon another, you muſt thruſt it quite home. Then being held in a Groove, it cannot

not fall out, but makes that Part of the Box close and intire, and so one Box being raised upon another, the Bees must work in and out thro' the Hole of the lowest.

339. *2dly*. If the Handles were not strong and well fastened, and should fail lifting up a Box or sometimes two, which may be the Weight of one hundred Pounds, lying upon the Handles, the Fall might prove the Destruction of the Colony.

340. *3dly*. As to the Sticks, they are needful for supporting the Combs with the Honey, as I have said, and 'tis better that they go thro' the Box in the Form of the Letter *X* than exactly across. The Doors for the Glass-windows are necessary for keeping out the Light from the Bees, for if they had it always upon them, it would much disturb them.

341. *4thly*. There are two other Instruments, which a Bee-master in the Colony Way cannot want; they are a light wooden Mallet and a thin Piece of Wood, rather thinner than the broad Slider on the Top of the Box, about nine Inches long, and of the same Breadth of the narrow End of the great Slider.

442. These two Instruments are for taking one Box from off another, by setting the End of this thin Bit of Board against the narrow End of the Slider of the lower Box, and with the Mallet driving it, until the Combs in the Hole in the Top of the Box be cut through, that the upper Box may be taken away as shall be directed.

343. For furnishing your House with Bees, buy Hives, and bring them home about *October*, by the Rules hereinbefore offered; after they have been one Night with you, about Six o'Clock next Morning, set all your Hives with their Mouths against the Holes made on Purpose in the Ledge under the Bee-house Door, and then with Lime and Hair smooth up all within the House, so that no Bees may get out of the Hives any where but thro' the Holes in the Ledge, and then generally you have little more to do till *April* or *May* next.

244. *October* is reckoned a better Time for purchasing than *May*, yet if you have the Opportunity of good

Swarms

Swarms near you, you ſhould not neglect it, but then you muſt bring them home the ſame Day they ſwarm, and put the Hives with their Mouths againſt the Holes in the Ledge as aforeſaid.

345. Tho' you furniſh your Houſe with Swarms in *May*, yet that will not more forward the working down of the Bees into the Boxes, than if you bought Hives in *October*, for thoſe will be fit to be raiſed upon the Boxes in the Spring following, and the Swarms will be no more. But,

346. If you incline to buy Swarms, you muſt, as I have ſaid, bring them home the very Day they are ſwarmed; for if you ſhould let them ſtand two or three Days, and the Weather prove good, they may make Combs to hold Honey to drown themſelves, becauſe the Virgin Honey is fine and thin, and the Combs being then tender and the Weather warm, they are apt to break down in the Carriage.

347. The Cloths the Hives are tied in when brought home, ſhould be large and thin, becauſe if they were thick, ſuch as Diaper or Damask when new, they would be too cloſe for the Bees to breath thro', and being ſo, tho' they might not be ſuffocated, would make them very angry and troubleſome in the putting into the Houſe; and large they muſt be, otherways they would not tie over the Hives.

348. If the Spring be early, the breeding of the Bees will be forward: You muſt therefore obſerve them in the End of *April* and in *May*, but muſt not raiſe them upon your Box, till they begin to ly out with a Tendency to ſwarming, then and no ſooner are they to be raiſed, and you are to proceed thus.

349. Having your Box ready with the Top-Slider quite open, that the Bees may paſs from the Hive down into the Box, aud the Slider in the Mouth of it drawn back, that they may have Room enough to work in and out, then open both the fore and back Door of that Part of the Houſe where the Bees are to be raiſed; when cauſe ſome Body ſtand ready with the Box, holding it by the

two

two Iron Handles at the Front of the Houſe, and the fore Slider or Mouth of the Box to him ward.

350. This done, go you behind the Houſe, and gently lift up the Hive ſo high, that the Box may go under it, then cauſe him with the Box in his Hand, ſet it with its Mouth cloſe to the Hole of the Ledge ſo often ſpoken of, which being carefully done, ſet down the Hive as exactly upon the Middle of the Box as you can gueſs, then ſtop the Mouth of the Hive with Lime and Hair preſently, ſo the Bees will immediately work down thro' the Hole in the Top of the Box, and in and out at the Hole in the Ledge they were uſed to before, without any Hinderance.

351. If you ſhould raiſe the Hive on the Box before they want it, you would greatly hinder their Work, by their being obliged to carry it thro' an empty Box to the Hive, which they had not filled, and if you ſhould not preſently ſtop the Mouth of the Hive, the Bees would ſtill hang about it, and not go down into the Box, but the Mouth of the Hive being cloſed up, they go immediately downward, having no other Paſſage except into the Box, and the Mouth of it ſerves for the ſame Purpoſe that the Mouth of the Hive did.

352. By the Uſe of the Glaſs-windows, you will know better, when to raiſe the firſt Box and Hive upon the ſecond Box, then you could underſtand when to raiſe the Hive.

353. When the Bees have ſo wrought in the Box, that the Combs come to the Window of it, and it ſeems very full of Bees as well as Combs, then is the Time to raiſe it on another, eſpecially if you ſee them ſeal up their Honey in the Combs half Way down the firſt Box, which you will alſo eaſily do by looking in at the Windows.

354. Then place ſome Body before that Part of the Bee-houſe, with a Box ready in his Hand, the broad Top-Slider being drawn quite back that the Hole may be fully open, and the Slider in the Mouth or under Part of the Front of the Box being drawn ſo far back, as to leave

leave a ſufficient Paſſage into it, which being done, take hold of the Handles of the firſt Box, lift up it and the Hive above it together, and ſet the ſecond Box under them, which in a good Summer, you will ſometimes have Occaſion to do by the Middle of *June*.

355. Thruſt home the Shutter of the firſt Box immediately, that no Bees may come out there, but work in and out thro' the ſecond, and be very obſervant that the Mouth of the Box be not only exactly oppoſite to the Hole in the Ledge, but that the Box be ſet ſo cloſe to it, that the Bees cannot creep between the one and the other.

356. If the Boxes when ſet upon one another as directed, do not go ſo cloſe together, but that there be Room for the Bees to come out betwixt the Joinings into the Houſe, then you muſt take a Knife and fill up the Chinks with Lime and Hair, and if they can get out betwixt the Box and the Floor, you muſt do the ſame. So now having a compleat Colony of two Boxes and an Hive, you have nothing to do till you take off the Hive.

357. When by the Glaſs-windows you perceive that the middle Box is well filled, then to take off the Hive proceed thus. Fix a Napkin by one End, with ſmall Nails or Pins on the Landing-board, where the Bees pitch before they go in. It ſhould be cloſe up to the Hole, but not to ſtop it, leaſt the Bees be diſturbed and their Work hindered.

358. In this Operation you have Occaſion to open only one of the Backdoors of the Bee-houſe, and then if the Top-Slider of the uppermoſt Box will not by thruſting it with your Hand, make its Way, cut the Combs, and cover the Hole, (which being the quieteſt Way will give leaſt Diſturbance to the Bees) you muſt take the thin Piece of Board and Mallet before ſpoken of, go behind the Colony, and ſetting the Board againſt the narrow End of the Top-Slider of the upper Box, with the Mallet drive it home till it cut the Combs that are in the Hole, which muſt be thus performed.

359. Hold the thin Board in your Left-hand, and with the Mallet in the Right, give it two or three Strokes

till

till it is home, all the while preſſing the Board, with your Left-hand, hard againſt the End of the Slider, and carrying your Hand even, that when you drive it with the Mallet, it may not ſlip over or under, but keep directly againſt it till it is quite thro'.

360. Then take hold of the Hive, which, being cut from the Box, will with little Force come up from it; and as you take it up, twiſt it a little round, ſo it will the eaſier part from the Box: Next, carry it away twenty or thirty Yards from the Bees, if your Garden will admit of it, that you may be eaſy and quiet while performing the reſt, for the Smell of the freſh Honey in the Hive you have taken off, might draw the other Hives about you.

361. Now, place your Hive with the ſmall End downward in a Pail, Peck, or Flower-Pot; ſo the ſmall End going into any of theſe Veſſels, it will ſtand firm; thereafter take an empty Hive, and place it on the Top of your Hive with Honey, Mouth to Mouth, then take a large Cloth, and tie them round at the Joining, that no Bees may get out.

362. This being done, ſtrike pretty hard with a Stick, to ſhake the Bees that are within; beat ſometimes on one Side, then on the other, and ſo all round, letting them ſtand a little, now and then, without ſtriking, that the Bees crawling up may have Time to go into the empty Hive; then beat again, all the while holding your Hand on the empty Hive, to keep it in its Place, otherways it might fall off by the ſhaking of the other.

363. When you have done ſo more than a Quarter of an Hour, being always cautious leſt you beat the upper Hive, which would make thoſe fall that were aſcended, let them ſtand ſtill a little, and then taking the top Hive in your Hand, which now hath all the Bees that were in the other Hive, carry them away to the Napkin, and laying a Stick on that Part of it, which lieth on the Ground, with one ſmart Stroke of the Hive on the Stick you will ſhake out all the Bees, where they will ly a little, and then crawling up the Napkin go home

to their Fellows, who will gladly receive them, as their Acclamations, which thoſe who are uſed to them, very well know, ſufficiently teſtify; ſo you have the Honey and they undiſturbed keep to their Labours, ignorant of the Trick you have plaid them.

364. On this Occaſion you will ſometimes ſee the King on the Napkin, and you'll be highly diverted, obſerving him with great Majeſty, marching up upon it with his Subjects, and into the Hole of the Ledge which leads into the undermoſt Box. But you ſhould never venture to take off an Hive or upper Box, unleſs you have good Reaſon to be perſuaded that there is a Sufficiency of Honey in the middle One, to maintain ſo great a Stock of Bees thro' the Winter, leſt you loſe the whole Colony, by the Want of what you have taken away.

365. Theſe Directions concerning the taking off the Straw-hive, will in a great Meaſure teach you, how and when to take off the upper Box the next Year after it is gone. So I ſhall not ſay much upon this Head, only you ſhould ſet the upper Box on the Ledges of a Joint-ſtool, turned upſide down, and inſtead of a Straw-hive to ſet upon the Straw-hive, you muſt now place an empty Box on the full one, and knock as before directed, on the Edge round the Top, which will be undermoſt next the Joint-ſtool, ſo the Bees will aſcend into the empty Box, and muſt be knocked out on the Napkin as before.

366. When you ſtrike the Box on the Stick that lies on the Napkin, in order to return the Bees to their Fellows, you muſt take Care that you don't turn thoſe Squares where the Glaſs-windows are over the Stick, leſt the Stroke might endanger the breaking of the Glaſſes.

367. If you keep no Bees in Straw-hives to get Swarms from, and have a mind to have one early in the Spring, then be ſure to take off the under Box in *September*, when it ſeldom hath Honey, and ſet the upper one down to the Floor. This is done by driving home the Cutter of the under Box, ſtanding behind the Bee-houſe, and lifting up the ſecond Box by the Handles

two

two or three Inches, and then cauſing a Servant, ſtanding before the Houſe, take the under one quite away. Then ſet down that in your own Hand, and draw back the Door-ſlider under the front Window, that the Bees may have Room to go in and out thro' that Paſſage.

368. And whereas ſome of them will be about the Combs in the Box taken away, knock them out or diſturb them, and they'll fly home. So your Colony being thus reduced to one Box, you'll not miſs to get a large and early Swarm, when the Spring comes, if you don't raiſe them upon another Box. Which Swarm you may keep as well in a Box as a Straw-Hive, and ſet it down in your Bee-houſe with the Mouth-ſhutter drawn back, and the Top-ſlider ſhut up, the Mouth of the Box being cloſe to the Hole of the Ledge as before, ſo you may have a Swarm out of a Box as ſoon or ſooner, than you could out of a Straw-hive: For a Way to cauſe them ſwarm is to ſtraiten them of Room, and to hinder them is to give them more of it, as has been ſaid, both which may be eaſily done in Boxes.

369. In theſe Deſcriptions and Directions concerning the Husbandry of Bees in the Colony-way, and without killing them, I have had my Eye chiefly on what Dr. WARDER has ſaid thereupon, which I was the more diſpoſed to do; becauſe a learned curious and ingenuous Gentleman, who aſſiſted me when I reviſed this Performance, ſays, "That in this Way of Colonies, and "by following the *Doctor*'s Directions, he has practiſed the "Bee-husbandry, both in Timber Boxes and Straw-hives, "betwixt thirty and forty Years, ſo ſucceſſively, that "he is reſolved he will never alter his Method." But I think 'tis juſt to mention, that I found he had ſo great an Averſion to the killing of Bees, that I believe he would not do it, tho' he was ſure to make more Profit.

370. He ſays further, "That he has often had in "his Way upwards of fifty *Scots* Pints of Honey in a "Year, beſides the candyed which he made into Mead; "and that he has ſeveral Times of late Years had Vir-"gin-honey, by placing an empty Box or Hive on the

"Top

" Top of a lower one, into which the Bees went up " and filled it with Combs and Honey; " which is contrary to Mr WARDER's Opinion; for he ſays expreſly, *That theſe Induſtrious Servants of ours, tho' they may be helped in their working, by ſupplying them with Room; yet they muſt not be contradicted in the Nature of their working, which is always to work downward, and not upward.* The Gentleman who, as I told you, has had thirty or forty Years Experience of this Way of doing, ſays, " That the ſame lower Box or Hive ſhould " not be kept above two or three Years together, leſt " the Combs, growing old, become too thick by the " young Brood's leaving a Skin therein, which you may " remember was obſerved in another Caſe. "

371. I have ſeen his Straw-hives in the Colony-way. They are round, as wide at the Top as at the Bottom, have four Pieces of Timber planed, not quite ſo thick as a ſquare Inch, of Length exactly equal to the Height of the Hive, are fixed thereto at equal Diſtances from one another, and they have Croſs-ſticks betwixt each two of them, as in the Timber-boxes deſcribed.

372. Theſe four Pieces of Timber are neceſſary, becauſe the Straw-hive would not without them be able to ſupport the Weight it gets to bear; and becauſe, by the Means of Handles fixed into them thro' the Hive, it can be lifted, as Occaſion requires.

373. Each Hive has likewiſe, in the Back ſide of it, a Glaſs-window with a Timber-ſhutter neatly ſewed in with a Pack-threed; the Head is of Timber with a ſquare Hole in it, as in the Timber-boxes deſcribed: He ſays, " Theſe Straw-hives may be uſed in the Co- " lony-way without a Houſe, tho' the Timber Boxes " cannot for the Reaſons formerly given. "

374. I ſhall next offer you in Mr. *Thorley*'s own Words, what he calls *His new eaſy and effectual Method, to preſerve Bees not only in Colonies, but common Hives, from that cruel Death to which their ignorant, injurious and moſt ungrateful Owners*, ſays he, *ſo commonly condemn them; a Secret unknown to paſt Ages, and now publiſhed for*

the

the Benefit of Mankind. You ſee he is vain of his Secret.

375. "The Preſervation and Improvement of Bees "in Colonies, has been no Secret ſince Mr *Geddie*'s hap- "py Invention, and how effectually to promote the ſaid "Ends in the Way of common Hives, is the kind De- "ſign of this Chapter.

376. "From the long Converſation I have had with "theſe very wonderful Creatures, their inimitable Ex- "cellencies, and many commendable Qualities, toge- "ther with their great Uſefulneſs to Mankind, I am "become one of their greateſt Admirers, and a Publick, "may I prove a prevailing and ſucceſsful Advocate for "them, moſt ſolemnly proteſting againſt all that notori- "ous Unjuſtice, and inexcuſable Ingratitude of their "cruel, and mercileſs Owners, who not content with all "their Treaſure, collected with infinite Pains and many "Perils, devote them to Deſtruction without any Di- "ſtinction, or the leaſt Pity and Compaſſion.

377. "Not unlike ſo many bloody Ruffians and Mur- "derers, who not ſatisfied to rob others of their Sub- "ſtance, do ſacrifice their Lives, their deareſt Poſſeſ- "ſion, for which they are the juſt Abhorrence of Man- "kind: A righteous Man regards the Life of his Beaſt, "and is no Regard due to theſe Creatures of GOD, "which are ſo excellent in themſelves and ſerviceable "to Men? Was *Balaam* rebuked only for beating his "Aſs? What Cenſure do theſe deſerve who thus de- "ſtroy ſuch Multitudes of innocent uſeful Creatures, "and moſt faithful Servants? Are they Righteous who "are thus cruel and barbarous? Or do they act con- "ſiſtently with their own or the publick Intereſt?

378. "When therefore the following Pages will "make it appear, with how little Trouble and without "any Expence, the Owners may come at their Riches "with Safety to their Lives, thoſe who ſhall hereafter "doom them to the common Death, muſt be altogether "without Excuſe.

379. The

379. "The Method I have purſued with ſo great Succeſs for many Years, and now recommend to the Publick, as moſt effectual for preſerving Bees in common Hives, is Incorporation, or uniting two Stocks into one, by the Help of a peculiar Fume or Opiat, which for a Time, will put them entirely in your Power to divide and diſpoſe of at your Pleaſure; yet know, that Dominion over them will be but of a ſhort Duration, therefore you muſt be expeditious in the Operation.

380. But, before you enter upon Action, and that you may proceed prudently with Safety and Succeſs, it will be neceſſary to premiſe and obſerve as follows, *viz.* You muſt know the Queen, or commanding Bee perfectly well, which you are immediately to ſearch for among the Multitude, to apprehend and impriſon, returning her no more to her beloved and moſt loyal Subjects: Search for her among the Bees which you deſtroy by Brimſtone, whereby you may learn to know her.

381. "No new Swarms or Stocks ſhould be thus united, except very late ones, and Caſts which have not gained a ſufficient Quantity of Honey for their Winter Store; ſuch I always unite to ſave their Lives: Hives, or Stocks, which have ſwarmed once or twice, conſequently reduced in their Numbers, are the fitteſt to be joined together, which will greatly ſtrengthen and improve them.

382. "Nevertheleſs, if you have a Stock both rich in Honey and full of Bees, which you are deſirous to take, it is but dividing the Bees into two Parts, and putting them into two other Hives inſtead of one.

383. "I muſt add one Precaution more under this Head, *i. e.* Examine firſt that Stock to which you deſign to join the Bees of another, whether there is Honey enough in it to maintain the Bees of both: It ſhould be full twenty Pounds in Weight, the heavier the better.

384. "The

384. "The Way thus prepared, I muſt now lead "my Readers into an intricate Path, to which I "take it for granted, they are perfect Strangers. And "tho' it hath many Windings and Meanders in it, yet "having travelled it myſelf ſo often, and with ſo much "Safety and Advantage, I doubt not but to conduct o-"thers thro' it to their Satisfaction: Provided they di-"ligently obſerve the following Directions.

385. "I am firſt to inform them what the Materials "are, and after that the Manner of Operation.

386. "The narcotick or ſtupifying Potion is only the "Fume of the *Fungus Maximus*, or larger Muſhroom, "commonly called by the Name *Bunt*, *Puckfiſt*, or "*Frogcheeſe:* It is as large or larger than a Man's "Head. I had one of theſe brought me the laſt Sum-"mer, unripe and white, which weighted ſome Pounds, "but when ripe, of a brown Colour, and turning to "Powder, they are exceeding light.

387. "Shepherds and Herdſmen, *&c.* frequently find "them in the Fields, and will ſupply you with them "towards the latter End of the Seaſon.

388. "When you have procured one of theſe Pucks, "put it into a large Paper, preſſing it down therein to "two Thirds or near half the Bulk, tying it up very "cloſe, put it in an Oven ſometime after the Houſhold-"Bread is drawn, letting it continue all Night; when "it will hold Fire, it is fit for your Uſe, in the Method "following.

389. "With a Pair of Ciſars, cut a Piece of the "Puck as large as an Hen's Egg, (better at firſt to have "too much than too little) and fix it to the End of a "ſmall Stick ſlit for that Purpoſe, and ſharpened at the "the other End, which place ſo, that it may hang near "the Middle of an empty Hive: This Hive you muſt "ſet with the Mouth upwards, near the Stock you in-"tend to take, in a Pail or Bucket: This done, ſet "fire to the Puck with a Candle, and immediately place "the Stock of Bees over it, tying a Cloth round the "Hives, which you muſt have in Readineſs, that no

"Smoke

" Smoke may come forth: In a Minute's Time, or lit-
" tle more, will you, with Delight, hear them drop like
" Hail into the empty Hive. When the major Part of
" them are down, and you hear very few fall, you may
" beat the Top of the Hive gently with your Hand, to
" get as many out as you can: Then closing the Cloth,
" lift it off to a Table or broad Board prepared on Pur-
" pose; and knocking the Hive against it several Times,
" many more will tumble out, perhaps the Queen a-
" mong them, as I have often found her lodging near
" the Crown, she often falls one of the last.

390. " If she is not there, then search for her among
" the main Body in the empty Hive, putting them
" forth upon the Table: If you discover her not be-
" fore.

391. " During this Search, you must proceed after
" the same Manner with the other Hive, with which
" these are to be united. No sooner are these Bees
" composed and quiet, and you have found and secur-
" ed the Queen, but you must put the Bees of both
" Hives in one, mingling them thoroughly together,
" and sprinkling them at the same Time with a little
" Ale and Sugar, putting them among the Combs of the
" later Hive, and shake them down in it. When they
" are all in, cover it with a Cloth, bound close about
" it, and let them stand all that Night and the next
" Day shut up, that a Bee may not get out; sometime
" after, you will be sensible they are awaked out of
" Sleep. The same Night would be best to put them
" in their proper Place, and if you had another Garden
" wherein to fix them, I would choose it myself, and
" recommend it to others.

392. " The second Night after the Union, in the
" Dusk of the Evening, move the Cloth from the
" Mouth, taking Care of yourself, and they will with a
" great Noise immediately sally forth, but being too
" late to take Wing will go in again: Then putting in
" two Pieces of Tobacco Pipes to let in Air, stop them
" close in together as before, and keep them so for three or

" four

" four Days longer, after which you may leave the " Door continually open.

394. " But in getting away the Cloth, you muſt uſe " Diſcretion and Caution, ſince they will for ſome Time " reſent the Affront and offenſive Treatment.

395. " The beſt Time of the Year for Union is after the " young Brood is all out, and before they begin to lodge " in the empty Cells, which they do in great Numbers " in cold Weather, and the Winter Time, tho' Mr. " *Ruſden* denies it.

396. " As to the Hour of the Day, I would adviſe " young Practitioners to do it early in the Afternoon, " that having the greater Light, they may the better find " out the Queen. The few Bees left in the Hive ſuffo- " cate with Sulphur. I never knew ſuch combined " Stocks conquered by Robbers, and they will either " ſwarm the next Summer, or yield you an Hive full of " Honey. A little Practice will make you perfect, and " one View of ſuch an Operation, would form a more " perfect Idea of the whole Tranſaction, than what the " ableſt Pen poſſibly can." So far Mr. *Thorley*.

397. I now proceed to the Account given by the Author of the Natural Hiſtory aforementioned, concerning the Manner of taking the Honey and Wax out of the Hives without deſtroying the Bees.

398. " *Clar.* Our laſt Converſation put me in Mind of a " Reflexion I have often revolved, *viz.* That there are " few Creatures upon Earth, but have their Antagoniſts " among other Species of Animals; and that Man is the " general Opponent of them all. He looks upon him- " ſelf as their King, and accordingly uſes a tyrannick " Sway over them. He imagines that the whole Earth, " with all the Things contained therein, was made for " his Uſe only; that he has an uncontroulable Right of " Life and Death over all Things who breathe. Me- " thinks 'tis whimſical enough, that Man, when he " eats his Ox or Sheep, ſhould imagine he poſſeſſes him- " ſelf of a Thing to which he had a juſt and lawful " Title.

399. " *Eugen.* The Lion may, with equal Juſtice, " fancy himſelf empowered to feed upon Man, and " the Wolf on Sheep. But 'tis my Opinion, that " 'tis neither the one nor the other could find any " other original Title of their Sovereignty, than Force " or Cunning. But let us engage no farther in a Que- " ſtion, as this would raiſe up a Multitude of Gainſay- " ers, whoſe Intereſt it would be to differ from us in O- " pinion. I ſhall only obſerve, that, if our Anceſtors " were Uſurpers of the Empire, they obtained over " Brutes; long Poſſeſſion has given us a Sort of Title " to this Sovereignty: But yet this will not permit us " to exerciſe ſuch a Power any otherways than with " Oeconomy, Prudence, Temperance and Diſcretion. " Beſides the Right we claim over their Perſons, we " have others, (and theſe ſeem better founded) on the " Things belonging to them. Some Creatures have " ſuch a Superfluity as would be utterly loſt; wherefore " then ſhould we not take Advantage of it? This ſe- " conding the Views of Nature, who ſeems to offer " them us. Hens lay a greater Number of Eggs than " are neceſſary for the Propagation of their Species. " Cows give Milk with ſuch a Profuſion, as plainly " ſhews that all was not deſtined as Suſtenance for their " Calves. Sheep let us ſhear their Wooll, which after- " wards grows again. Bees have the Art of renewing " their Wax, whenever they are diſpoſſeſſed of it. Let " us therefore divide thoſe ſeveral Things with them, " but then let us imitate on theſe Occaſions, good " Kings, who exact no more Contributions from their " Subjects, than what may enable ſuch Monarchs to " compenſate for theſe by adminiſtring Juſtice to their " Subjects, by indulging them Protection and procuring " them Plenty. We behave thus towards ſuch Crea- " tures as are kept in our Yeards; Why then ſhould Bees " only find the Effects of our Cruelty? We deſtroy e- " very Year, in ſeveral Provinces of the Kingdom, and " eſpecially about *Paris*, a great Number of Hives, and " this merely for Deſtruction Sake. In the Places I am

" ſpeaking

" ſpeaking of, a Cuſtom equally ridiculous and cruel " prevails. The Perſons hinted at, employ no other " Method in order to get the Honey and Wax out of the " Hive, than to kill all the Bees who inhabit it. For " this Purpoſe they make a Hole in the Ground large " enough to receive the Bottom of the Hive. In the " Bottom of the Hole, Raggs ſmeared with Brimſtone " and ſet on Fire are thrown. The Hive is ſet on the " Vapour, when immediately ſo much Earth is drawn " round it as may ſuffice to prevent the Bees, and even the " Smoke from getting away. The Stench of the Brim- " ſtone with which the Hive is inſtantly filled, ſoon " ſtifles all the ill-fated Bees. There are other Kinds " of Death, the Invention whereof various Authors " thought meritorious ; but which I think is a Merit to " conceal. In the Places where this Practice equally " unskilful and barbarous is uſed, People apologize for " themſelves by declaring, that they deſtroy on theſe " Occaſions none but old Bees, from whom no farther " Harveſt can be expected ; Bees who would furniſh no " more Swarms, but would eat during the Winter-Sea- " ſon, a conſiderable Quantity of the Honey ſtored up " by them. In this Manner would a Tyrant argue, " who, after he had cut to Pieces all the Inhabitants of " one of the Cities, merely for the Sake of Plundering " their Gold and Silver, ſhould endeavour to juſtify his " monſtrous Cruelty, by declaring, that all the Inhabi- " tants were very ancient, and incapable of furniſhing " Poſterity next Year.

400. " *Clar.* This is a perfect Picture of the Avarice " with which Man is fired. All his Arguments, as well " as his Conduct, are big with Horror. Whenever I " ſee Injuſtice and Cruelty go Hand in Hand, I con- " clude from thence, that they are led on by Avarice, " and I am ſeldom or never miſtaken in my Conjec- " tures.

401. " *Eugen.* Your Reflexion, *Clariſſa*, is exceed- " ingly juſt. Who told the Perſons hinted at as above, " that all the Bees in an Hive are old. We ourſelves

" have

" have ſeen when a Swarm was iſſuing forth, that it " conſiſted of old and young Bees; and that many of " both Sorts remained in the abandoned Hive. When " the *Goths* and *Saxons* ſent Colonies into *Gaul*, did they " leave in their own Country none except old Men " who were unable to get Succeſſors? Hives recruit " themſelves perpetually like Cities and Governments. " Tho' the Bees of an Hive happen to be deſtroyed by " ſome Accident, yet many exiſt eight or ten Years. " I know a Peaſant who preſerved an Hive above 30 Years. " The Murderers abovementioned add, that Bees would " devour during Winter all the Honey ſtored up by " them. But this is another Argument dictated by A- " varice, which ever miſtakes its true Intereſt. It " muſt be confeſt, that our Inſects would eat the great- " eſt Part of ſuch Honey, and perhaps all; ſince they " hoard it up merely as Proviſion for themſelves. But " does it not argue more Wiſdom in us, to be contented " with taking away a Portion at different Times, and in " various Seaſons of the ſame Year, as is the Practice " in many Countries, than to carry off the Whole at " once? By what Name would you call a Peaſant, who " would kill his Goat, merely that he might at once " take all the Milk contained in the Bladders of that " Animal?

402. " *Clar.* How delighted am I to hear you con- " found Covetouſneſs, and undertake the Defence of In- " nocence, in Oppoſition to Oppreſſion and Tyranny? " Would I could enact Laws, a dreadful Proclamation " ſhould then be publiſhed againſt Bee-cide.

403. " *Eugen.* There is really ſuch an one. *Alexander* " *de Montfort*, whom I before mentioned, cites a Law, " enacted by a grand Duke of *Tuſcany*, forbidding all " Perſons to put Bees to Death upon Pain of being pu- " niſhed arbitrarily.

404. " *Clar.* Delightful Prince! How juſtly did he " deſerve to command over others? Why was not this " laudable Example imitated by all the Monarchs upon " Earth? Myſelf will make ſuch an Injunction, and

" cauſe

" cauſe it to be publiſhed throughout the whole Extent " of my little Territories.

405. " *Eugen.* This will be well, but then you at " the ſame Time muſt reſtore another Practice, I mean " the gentler Method of taking away the Wax and Ho- " ney.

406. " *Clar.* 'Tis from you that I expect to be taught " this.

407. *Eugen.* " When a Perſon has uſed his utmoſt En- " deavours to preſerve Bees, and to multiply and pro- " duce large Harveſts from them, ſuch an one may juſt- " ly expect to ſhare the Fruits of their Labours with " theſe Inſects, I ſay, divide it with them, and not ſeize " upon the whole, and butcher them at the ſame Time. " This ſharing or dividing with the Bees is performed " by only cutting of ſome Proportion from every Hive: " ſuch is the Cuſtom in ſeveral Countries where they " are cut in different Seaſons. In ſome this is done at " the End of *February*, or in the Month of *March*; " we then may without injuring the Bees, take away a " conſiderable Quantity of their Wax, and at the ſame " Time of the Honey remaining of their Winter-hoard. " There needs no more be left them than what may be " neceſſary for Support, during the inclement Days be- " tween the End of Winter and *May*, we may alſo take " out ſeverals of their Combs, which are empty of Ho- " noney, particulary thoſe, the Wax whereof is grown " too black. What is thus taken away from Bees at a " Time, when they have an Opportunity of recruiting " it ſoon, is a Superfluity which ſo far from injuring, " gives them more Room, and an Opportunity of mak- " ing new Work. However, as the Time for this O- " peration differs in many Places, it muſt vary accord- " ing to the different Provinces or Countries, and ac- " cording to the more or leſs Clemency of the Seaſons. " Our Harveſts are not all gathered in the ſame Month. " In Proportion as the Flowers ſpring forth, or are kept " back, the Labours of the Bees are either forwarded

" or

" or retarded. In ſome Provinces the Honey-combs " are not cut till *July* or *Auguſt*.

408. *Clar.* " This Article, of cutting the Honey-" combs, ſeems to be a very bold Attempt. D'ye " know, *Eugenio*, that, ever ſince I have kept Bees, " I never had the Courage to be preſent on ſuch Oc-" caſions ?

409. *Eugen.* " D'ye think you'll dare to liſten to the " Deſcription of it ? 'Tis a Military Expedition, and " one of the boldeſt, to carry off, from the Inſide of an " Hive, Honey-combs which Thouſands of Bees, ſtrong-" ly armed, are always prepared to defend. And, in-" deed, he who engages in this Interprize, ſhould be " armed *Cap-a-pee*. He muſt uſe the ſame Precaution " obſerved by your Gardiner, when he took a Swarm " from a Tree, in order to remove it into an Hive, I " mean, that he muſt well cover his Face, his Hands " and Legs, nevertheleſs ſome *Peaſants*, as I obſerved " before, uſe none of theſe Precautions. With regard " to the Time of Day fit for this Operation, ſome con-" clude Noon to be the beſt ; from a Suppoſition that " the greateſt Part of the Bees are then in the Field. " However, I would not adviſe any Perſon to truſt to " this. About Twelve at Noon, during the hot Days, " the leaſt Work is done by the Bees ; and conſequent-" ly moſt of theſe Inſects are then in the Hives. In " caſe the Noon of temperate Days is choſen, the more " Bees there are abroad, the greater Number will be re-" turning home every Inſtant. All theſe little Inhabi-" tants, exaſperated to find, at their Return, their City " demoliſhed, and their Poſſeſſions plundered, will haſt-" en to Vengeance, and the enraged Squadron will not " give Quarter to the common Enemy : Others are of " Opinion, which is alſo mine, That the beſt Time is " the Morning, as our Inſects are then ſtill pinched by " the Cold of the preceeding Night. To quiet the " Bees the more, and make them leſs furious, the " ſmoking them will render theſe Inſects yet more " ſenſeleſs : To effect this, the Hive muſt be lifted up

" a

" a little, when the Smoke of a Rag, held in ones
" Hand, being introduced; this makes the Bees giddy,
" and forces them to move towards the Summit of the
" Honey-combs. We then ſeize the Inſtant, and turn-
" ing the Hive Side-ways, laying it on a Chair, or Bench,
" of ſuch a Height, as may facilitate the intended O-
" peration. And now, a ſingle Glance directed to the
" Hive, ſhews, at once, what Combs are fit for cutting.
" Then with a Knife, whoſe Blade bends like that uſed
" for cutting Vines, we pare away whatever may be
" thought proper. The Survey of ſuch Combs as are
" full of Honey, and thoſe which are very old, deter-
" mine the Operation where to cut, and either to take
" whole Combs away, or only Parts. In a Word, 'tis
" allowed to be juſt in ſome Meaſure, and even neceſ-
" ſary, to leave the Bees about Half their Honey. 'Tis
" proper to keep the Rag burning during the whole O-
" peration, and to let its Smoke deſcend in the Hive,
" in order to keep the Bees in.

410. *Clar.* " All theſe Precautions are extremely
" ſeaſonble; but do not the Perſons, who thus take a-
" way Honey and Wax, run the Hazard of carrying
" off and deſtroying, at the ſame Time, a great Num-
" ber of little Worms, or Maggots, which might ſoon
" have turned to Bees.

411. *Eugen.* " Your Obſervation is quite right, this
" being an Error which many, thro' Careleſneſs, often
" commit. However, a little Experience in Honey-
" combs, in diſtinguiſhing thoſe whoſe Cells are ſhut,
" and, among theſe, the being able to diſcern ſuch as
" are Store-houſes of Honey, from thoſe which contain
" *Nymphæ*, will prevent our committing any Miſtakes
" on this Occaſion. By firſt breaking off a little Piece
" from the Honey-comb, and examining its Cells, we
" eaſily diſcover whether any Worms, *Nymphæ* and
" Eggs, are incloſed in them, in which Caſe we muſt
" not touch them. Some Authors adviſe us, to cut
" ſuch Combs only as are towards the Back of the Hive;
" but this Rule is too general. The beſt is, to pitch

" upon

" upon ſuch Combs as are fulleſt of Honey, After hav-
" ing taken what we think proper from an Hive, we
" then ſet it in its Place again. That Side, whence
" the largeſt Quantities have been taken, ought to be
" ſet forward; *that is*, to be moſt expoſed to the Sun;
" the Bees chuſing rather to work on this Side. Some
" Perſons have thought upon an Expedient on theſe
" Occaſions; and which is judged by them as a *Medi-*
" *um*, between the Deſire of taking the Produce of a
" whole Hive, and the Cruelty of putting all its In-
" habitants to Death. The Expedient I here mean is,
" The removing the Bees of a full Hive into an emp-
" ty one. However, this Practice is not convenient ex-
" cept in the Spring, and during Seaſons when the Fields
" may abundantly furniſh Bees wherewithal to repair,
" with Speed, the Loſſes they thus ſuſtain. Never-
" theleſs by this Practice, the Eggs are deſtroyed,
" which is always a conſiderable Loſs, and conſequently
" ſhould be prevented as much as poſſible. I know but
" one Caſe in which this is abſolutely requiſite, and that
" is, When the falſe Moths are multiplied to ſuch a
" Degree in the Hive, that the ſafeſt Courſe the Bees
" can take, is to abandon it to them."

412. Now you have Mr. *Geddie*'s, the *French* Author's, Mr. *Thorley*'s, and the more common Method of coming at the Honey and Wax, conſider well, weigh Circumſtances carefully, and chuſe which of them you will. I wiſh you Succeſs.

413. Before I conclude, I ſhall offer two Recepts for making Mead, take alſo which ever of them you think beſt. The firſt by Mr. *Thorley* is,

414. How to make Mead not inferior to the beſt of foreign Wines.

415. Put three Pounds of the fineſt Honey to one Gallon of Water, two Lemon-pills to each Gallon; Boil it half an Hour, well ſcummed, then put in while boiling Lemon-pill; work it with Yeaſt, then put it in your Veſſel, with the Pill, to ſtand five or ſix Months, and bottle it off for your Uſe.

416. *N. B.* If

416. *N. B.* If you chuſe to keep it ſeveral Years, put four Pounds to a Gallon.

417. The ſecond by Dr. WARDER, tho' I have not kept ſtrictly to his Words, is, how to make *Engliſh* Canary no way inferior to the beſt of *Spaniſh* Wines:

418. One hundred and twenty Pounds will make a Barrel of very good Mead; but if you make it of clear Honey; your beſt Way is to allow four Pounds to every Gallon of Water; mix the Honey and Water in a Copper, then boil it an Hour, and ſcum it well; which Scum ſtrain thro' *Hippocrates's Sleeve*, or a taper'd Bag made of Swan-ſkin, (fine thick Flannel) with a Hoop at the wide End, letting the narrow End come to a Point. This Bag will make it as fine as the other. When your Mead is almoſt cold, tun it up, clay it down, and let it ſtand till it is fine and old enough to drink, which will be ſooner or later, according to the Seaſon of the Year in which it is made, and the Weather that comes thereafter. This Liquor is one of the choiceſt and moſt wholeſome Wines in the World, and exceeding fit to be made uſe of in Poſſets and as Canary. Thus uſed, 'tis impoſſible to know whether the Poſſet was made of Mead or Canary.

419. If you make Mead of the waſhing of Combs, or of Honey from the Combs; then you muſt diſſolve it in warm Water, till an Egg will ſwim in it the Breadth of a Shilling. In this Caſe you muſt be careful that, before you break your Combs into the Sieve or Strainer, you ſeparate all the young Bees, which you may eaſily know from the Honey, as alſo, the Sandrach or Bee-bread, which is a yellow Subſtance, with which ſome of the Cells will be full. Theſe would give your Mead an ill Taſte. Then proceed to boil, ſcum, and tun as before directed. It is beſt to keep the Mead till it is a Year old. If it is made, as adviſed, and of clear Honey, it will keep as long as you pleaſe. I have ſome of it almoſt nine Years old, ſays Mr. WARDER.

420. You ſee the *Doctor* has given his Opinion, that this is one of the choiceſt and moſt wholſome Wines in the

World. Yea, who doubts, but the Products of a Country where Men are born and bred up, are more friendly to their Conſtitutions, than thoſe of Outlandiſh Soils in diſtant Climates. Yet, ſo vitiated and corrupted are our Taſtes, ſo inordinate our Deſires for foreign Liquors, and ſo infatuated are we, as, acting contrary to our true Intereſt, and even common Senſe, to reliſh no Liquors, but ſuch as bring Diſeaſes and Poverty on us together.

421. What can be more unreaſonable than to bring Brandy, made of liquified Tartar, (the Lees or Dregs of Wine) from *France*; poiſonous Gin, with which Rum is commonly mixt before it comes to our Hands, from *London*; and Wine, often adulterated, from ſeveral remote Countries? I ſay, what can be more contrary to the Dictates of Reaſon, than to bring Home *French* Wine and Brandy, (which can only be purchaſed with Caſh, and which Occaſion innumerable Perjuries, which draw down the Wrath and heavy Judgments of the Almighty upon the Land) when we can have pure and good Liquors, natural to our Conſtitutions, made of our Honey, our own Grain, and other Products of our own Soil.

422. Is any foreign Wine often refined with poiſonous or bad Things, tho' it were got in Exchange for our Manufactures, pleaſanter or better than *Britiſh* Canary, (Mead) made of pure Honey? Let ſuch as have not drunk more foreign Wine than Mead determine this Queſtion, their Taſte being unvitiated: Or, is the firſt ſo wholſome as the laſt? How many lamentable Deaths, occaſioned by drinking of foreign Wines and Spirits, have happened to the Knowledge of every one of us? What Numbers of foreign Wines and Brandy Drinkers do we ſee daily tortured with the Gout, and other violent and inveterate Diſtempers?

423. Are Poſſets, which we generally like well when made of foreign Wine with the additional Expence of Sugar, ſo good and wholſome as ſuch made of Mead which needs no Sweatening? I have heard the Doctors ſay, That Colds are the Inlets to, and lay the Foundation of Conſumptions, and moſt of the Diſeaſes we are

ubect

ſubject to. Honey Drinks and Mead Poſſets are, I'm informed, ſovereign Remedies for theſe Diſtempers.

424. Surely we are a deluded People! we deſtroy both our Perſons and our Purſes to pleaſe our vitiated Palates; and we are like to continue wilfully blind to our own Intereſt, until we are in a State of Miſery irretrivable. Nothing, which I can ſee, can keep us from it, but Manufactures carried on, immediately and vigourouſly, upon Husbandry, which is their only ſure Foundation. This is indeed a certain Way to prevent it, but let us not forget, let the Impreſſion be ſtrongly fixt, that this is the only Way.

425. Unleſs our Fiſhery was like to do well, I ask every Man what can prevent our Ruin, but Husbandry and Manufactures encouraged by Home Conſumpt? Yea, the Conſumpt of every Family in the Kingdom will be found neceſſary, and the Demands of every Family ſhould, no doubt, be reſtricted, to ſuch Articles as our Husbandry and Manufactures produce. Could this be brought about, we ſhould yet become a rich and a happy People. Our contrary Behaviour ſhews, that we are infatuated, and gallopping along the high Road to Deſtruction.

426. I have heard it ſaid, That the Quakers have a Law or Maxim among them, to buy only from one another, but to ſell to all the World. Well would it be for us, if every *Scotſman* was of the Principle juſt mentioned, with reſpect to the Products of our own Soil, and the Manufactures of our own Country.

427. Would the Great and the Rich lead the Way, and perſevere, lower Ranks would follow. Nothing ſeems plainer than that the Calamities of a Nation, tho' they fall moſt ſenſibly on the poorer Sort, ly nevertheleſs heavieſt upon Men of Eſtates at laſt; they having moſt to loſe. The Tenant's Loſs is really the Landlord's.

428. Let Landlords only remember, that the Value of their Eſtates depends abſolutely on the Condition and Circumſtances of the Tenants. If this certain Truth

was

was but confirmed in their Minds, then they would eaſily find out how deeply they are concerned in this Matter, and how much it is their Intereſt to encourage and promote Husbandry and Manufactures, not only by Home Conſumpt, but by every poſſible Way: And I think I may obſerve that many of them would ſtay more at Home for that Purpoſe.

429. A Child touched by a ſingle Spark, will dread the Fire and keep off it; but the Nation, it appears, ruined byf oreign Commodities, will not abſtain from them, and even thoſe who have no reaſonable Call to go abroad, will not ſtay at Home and ſpend their Money, when ſtaying at Home and abſtaining from foreign Commodities would make the Kingdom rich and happy; and when the Products of the Land and our Manufactures are indiſputeably good, and may well ſerve the greateſt. I leave it to every Reader to make his own Reflexion upon this. If I made one, I might probably diſoblige many.

430. How many have died chearfully and gloriouſly for the Sake of their Country? Will we continue to gratify our vitiated Taſtes, and fooliſh Fancies to the Ruin of ours? Will any *Scotſman* have the Aſſurance to call himſelf a *Patriot*, who, having no neceſſary Cauſe for living out of the Kingdom, drains it of its Coin, by ſpending his Rents abroad, or who by the uſe of foreign Commodities, undermines our Husbandry and Manufactures? Theſe who encourge and ſupport them, and ſome ſuch even of the greateſt Diſtinction we have, thereby prove themſelves to be *Patriots* indeed, and they have the beſt and a juſt Title to the glorious Epithet. May the Number of ſuch encreaſe daily: May they be always favoured and employed by the Crown, as they will be the Darlings of the People: When Death ſhall deprive us of the Bleſſing of any of them, may their Places be filled with Men as like them as poſſible, and may the Merit of the Dead be always faithfully recorded in Hiſtory, that Honour and Praiſe may be paid to their Memories by all ſucceeding Generations.

APPEN-

APPENDIX.

I Purpoſed to have ended my Book as in the preceeding Page, yet I am excited to offer this Addition. I find my Performance gives not univerſal Content: I'm ſorry for it: But how could I expect it would ſince no Book ever did, or I believe ever will? For who can be ſo exact as not to fail ſometimes? And even when there is no Failing, there's no eſcaping the Cenſure of bad Judges, of whom there are many. I have ſomewhere read,

All human Race would fain be Wits,
But Millions miſs for one that hits.

Now, ſince an Opportunity offers, the printing of my Book being not quite finiſhed, I ſhall firſt tell you how I came ſo early to the Knowledge of the Exception, next what it is. Then I ſhall venture to ſay a little for myſelf; and, laſt of all, ſubmit to every candid Reader if the Cenſure is not unreaſonable.

My

My Performance was not ready for the Preſs till near the End of *February*, when the Printers are more hurried, by Buſineſs of the Court of Seſſion, than at any other Time of the Year; ſo, ſince it could not be publiſhed till the Vacation, when the numerous Attendants on the Seſſion, the moſt probable Purchaſers, go out of Town, I was adviſed to put Copies of the firſt Sheet, as a Specimen, into the *Coffee-Houſes*, that my Deſign might be known, and ſpoke of before they went. This I complied to, for I thought it might let me, by the Information of Friends, into People's Sentiments concerning the Work before it was finiſhed: Some for the ſame Reaſon had Acceſs to the other Sheets as they were caſt off, and thus I have in Part gained my End. For,

One of a Company at a *Coffee-Houſe* Table, lifting up the firſt Sheet, ſaid, "Have ye read that Gentlemen? "Yes, *ſaid one*, I have, and I wiſh the Stock may an- "ſwer the Sample. I have read, *ſaid he who opened the* "*Diſcourſe*, three Sheets of four of it, which a Friend "put into my Hand, and I tired. The Book might, I "doubt, not be uſeful, but, alas! the Stile is ſo poor, "mean and low, that 'tis apt to put one aſleep, 'tis all "lifeleſs Matter, it has no Embelliſhments, nothing en- "tertaining and enlivening; Who will ſpend their "Time upon ſuch a heavy Piece, that has read the Na- "tural Hiſtory of the Bees, Nature diſplayed, or any "Thing ſprightly wrote on that curious and fruitful "Subject? Not the young and lively: None, I dare ſay, "but dull unfaſhionable People, or old out of the World "Folks.

"Why, *replied the other*, was not the Honey ton- "gued *Virgil* the firſt in your Liſt? But pray explain "yourſelf, Do you cenſure, or do you praiſe? If the "old, experienced, and wiſe read the Book, will it not "be becauſe they find in it profitable Inſtructions in "plain eaſy Language, without Excurſions into extra- "vagant Narratives, which divert the Mind of the Rea- "der from Attention to the uſeful Parts? If I may be "allowed to offer my Opinion, it is, that I find out the

"Author's

" Author's Sentiments eaſily. What other Manner of
" Expreſſion do we want, in a Book wrote for Inſtruction
" not for Amuſement? I ſuppoſe he meant not to write
" a Novel."

Novel, No! I believe he did not, *anſwered the Objector, with a Sneer*, and then lifting the Paper read from it. *In the Natural Hiſtory mentioned, a Dialogue betwixt* Eugenio *and* Clariſſa; Eugenio, *ſays he, opened the ſovereign Bee anatomically, and aſſiſted* Clariſſa *by his Glaſs, to ſee that ſhe the ſovereign Bee is the fruitful Mother, that the Drones are the Males, and that the working Bees are of no Sex: Dr.* WARDER, *ſays they are Females: What ſhall we believe?* " So, *continued he*, he
" leaves the Matter, and is not this ſillily told? More,
" *ſaid he*, I add not at the Time, but only this: The
" Difference betwixt Things are beſt known by Compa-
" riſon: Read the Natural Hiſtory upon the very Oc-
" caſion, there you'll obſerve how beautifully and how
" naturally the Author makes his *Eugenio* and *Clariſſa*
" expreſs themſelves, and then I ſubmit the Matter to
" yourſelf. All fair, *ſaid the other*, and ſo can I to
" you, but here we have very proper Judges."

This Controverſy, which ſhews that, as I have ſaid, there is no pleaſing every Body, has diſpoſed me, ſince others may be of the ſame Opinion with the *Objector*, to inſert the Converſation which he praiſes ſo much, that ſuch as like it may find it here, and that every Reader may judge, whether I did right to take the Way I have taken, or would have done better if I had followed his Example.

Eugen. " The remaining Queſtion is to know how
" this Queen behaves to become a Mother? How ſhe
" acts with her Hundreds of Husbands? How ſhe con-
" ducts in her numerous *Seraglio?*

Clar. " I impatiently expect the Particulars; I ima-
" gine the gallant *Anecdotes* of the Mother Bee would
" make a very entertaining Hiſtory. Having examin-
" ed, as you have done theſe with ſo penetrating an
" Eye,

" Eye, I make no Doubt you have ſurprized the Queen " throwing her Handkerchief."

Here I paſs over betwixt three and four Leaves, and you may gueſs I have Reaſon, when *Clariſſa* was brought to tell *Eugenio*, *You are lucky that I'm not diſpoſed to quarrel, I know as much of this Article as I am deſirous of knowing*. But I hope I may be excuſed for inſerting that very Part, which the Gentleman made Uſe of; for 'tis natural for every Man to defend, and to paſs a right Judgment, you muſt have his Evidence as well as mine before you.

Clar. " Now open the Body of a working Bee, that I " may have no Doubt of the different Species.

Engen. "Here is one. You ſee here the Canal for Ali- " ments; a firſt Stomach which contains the Honey; " a ſecond Stomach and the Inteſtines filled with Crude- " Wax: But beyond this, you obſerve no Part analo- " gous to the *Ovaria*, nor any Thing that reſembles, or " that one can even ſuſpect to be Eggs: Moreover you " ſee no Part which has the Appearance of being that of " the Males or Drones.

Clar. " That is true, I ſhall however raiſe one Ob- " jection. How are you ſure that there is in one Hive " one only Female; that what you call Drones are all " Males; and that the working Bees are without Ex- " ception of neither Sex: To conclude, that the Bees " are all each in their Kind, ſuch as you have opened? " It appears to me very difficult to verify this exactly.

Eugen. " The Certainty of it is very ſimple and eaſy. " You have only to devote, as I have done, an entire " Hive, to deſtroy all its People, either by Smoke or Water, " and then to examine every particular Bee: It is not e- " ven neceſſary to open them, it will ſuffice to preſs " them between your two Fingers: One can eaſily " make the characteriſtick Parts of the Sex appear in " thoſe which have any; and the Default of that Ap- " pearance will indicate thoſe which have none.

Clar.

Clar. "What Poſſibility is there of reſiſting ſo great "an Evidence? After what I have ſeen there is no Room "for Diſpute, one muſt ſurrender.

Eugen. "To take Advantage of the good Diſpoſition "you are in, I paſs to the Recital of the Mother Bee's "Amours. A Mother Bee, who is the only one of her "Sex found in the Hive, as ſhe is at certain Times "found there with ſeven or eight Hundred, and ſome-"times a thouſand Drones, ſeems to be there in the Midſt "of a very numerous *Seraglio* of Males. They have "however pretended, that ſhe admits none of them to "any Intimacies with her. It is true, that hitherto "no Perſon has ſeen her ſeek their Union, or, at leaſt, "no Perſon has writ that he has ſeen it. But this is one "of thoſe Caſes, wherein a negative Proof cannot have "much Force: For without aſcribing Modeſty to this "Bee, there is no Reaſon to imagine that ſhe quites the "interior Part of the Hive, where ſhe likes to paſs "her Time, and that ſhe endeavours to expoſe her-"ſelf to the Spectators Eyes, when ſhe would permit a "Male to render her fruitful. The Queen of *Achem* is "in the ſame Caſe with the Queen of the Bees, that is, "to have a *Seraglio* of Men at her Command. If then "one of thoſe Travellers, who traverſe the World to "inſtruct themſelves in the Manners and Cuſtoms of dif-"ferent People, ſhould keep himſelf in the Suburbs of "the City of *Achem*, in hopes that the Queen will come "to ſeek him in the Fields, with ſome one of her Fa-"vourites, to make him a Spectator of what Secrets paſs "between them, he would probably wait a great While "to no Purpoſe: And if he ſhould take it in his Head "to conclude, that Men attend this Queen like ſmall "*Bologna* Dogs, only for the Pleaſure of being looked "at, I fancy he would not find many Readers ſo ſimple, "as to believe his Relation. Let us make the ſame In-"ference with reſpect to the Bees. We have it not in "our Power to be Witneſſes of all their Actions. Our "Eyes are not formed to ſee through their waxen "Combs, covered with ſeveral Layers of common Bees.

" But we are certain, it is behind theſe Combs, that the " Miſtery of Fecundation is carried on. Being thus inſtruct- " ed of the Place where the Operation is performed, no- " thing remains but to know the Time and Manner. The " Time is eaſy to be known. At the Beginning of the " Spring, open an Hive, you will not find one ſingle " Male: From the Middle of *May* to the End of *June* " you will find Hundreds of them: From thence to the " following Spring you look for them in vain: The " Time therefore of Fecundation can be no other than " when there are Males, that is, about ſix Weeks tak- " en in the Months of *May* and *June*. With regard " to the Manner how Things paſs to cauſe this Fecun- " dation, 'tis what I myſelf have ſeen, and of which I " will give you an exact Account. I found the Secret " to force a Mother Bee to act before me, in the ſame " Manner ſhe does in the Bottom of her Hive.

Clar. " Hold *Eugenio*, your Virtuoſi may have the " Liberty of ſeeing what is improper for the Ladies to " hear.

Eugen. " There are Ways of Talking to the Under- " ſtanding without ſhocking the Ears; theſe Ways I in- " tend to make Uſe of. Towards the Beginning of *May*, I " took a Mother, who had already given Birth to a great " Number of Bees, and who was willing to give it to " ſeveral more. I put her into one of theſe Glaſſes " which we uſe for Powder, where I ſhut her up with " ſeven or eight Males. I was curious to obſerve how " they would behave with her, or ſhe with them. They " were taken from the ſame Hives, and were ſome of " her Husbands. They treated her, however, with an " Indifference I did not expect. Near upon two Hours " I left them together, in which nothing paſſed between " them. Each continued on its Side in a perfect Inac- " tion, as People who would never be acquainted.

Clar. " It ſeems as if this Experiment is not much to " the Advantage of what you would perſwade me to.

Eugen. " When one makes Experiments of this Na- " ture, it is equally advantageous, to know what makes

" them

" them fail, as what ſucceed. This laſt did not ſuc-
" ceed, for the following Reaſons. In order to get this
" Queen Bee, I had plunged the whole Hive into Wa-
" ter, and, by this Means, had taken out the Queen al-
" moſt drowned. Returned therefore in ſo ſmall a Time,
" from the Gates of Death, it is not at all to be won-
" dered at, that ſhe had not thoſe Paſſions, which are
" the Effects of full and perfect Health. Beſides, ſhe was
" in the Middle of her Laying-time, when all Animals
" of both Sexes have no mutual Deſires. Add to this,
" ſhe was not a young Mother; the Condition of her
" Wings proved her Age, as ours is known by the
" Wrinkles on our Fore-heads: Her Wings were notch-
" ed, and the Edges of them ſhivered away. The Obſer-
" vations I was deſirous of making Demanded, therefore,
" that I ſhould ſhut up with ſome Males a Female,
" which, as yet, had no Communication, or very lit-
" tle, with them. Towards the Middle of *June* they
" brought me one, which I had Reaſon to believe was
" ſuch as I wanted. She had been found, that Morn-
" ing, near an Hive, which had ſwarmed the Night be-
" fore. For, as I already told you, there are ſome-
" times ſupernumerary Queens amongſt the Swarms:
" This, I ſpeak of, was one of the Swarm, who, 'tis
" likely, had ſaved her Life by Flight. The good
" Condition of her Wings, and her Colour, made me
" conclude, that ſhe was yet young; aud the Bulk of
" her Body, not ſo great as that of a Female ready to
" lay, ſeemed to prove, that ſhe had no other Eggs,
" but ſuch as were extremely ſmall. I ſhut her up in
" the Glaſs, where I put likewiſe a Male with her,
" which I had ordered to be taken from one of my old
" Hives. I diſcovered the Character of this young
" Queen, as ſoon as ſhe had been put to the Proof.
" I had never ſeen any but Queens, accuſtomed to be
" treated, every Inſtant, by the working Bees, to re-
" ceive from them Preſents of Honey, Thouſands of
" Carreſſes, and a Thouſand little Marks of Eſteem, of
" every Kind. Thus I ſaw, with ſome Surprize, that

" all

" all the Deference, which common Bees have for the " Mother, the ſame this young Queen had for the " Drone I had put to her. Not ſatisfied to come near " him, ſhe delayed not to put out her Trunk, ſome- " times ſucceſſively to lick different Parts of the Male's " Body, at other Times to offer him Honey: ſhe turn- " ed round about him, continually carreſſing him, either " with her Trunk or Legs. The Drone ſtupidly ſubmit- " ted to ſo many Endearments, as if they had been his " Due, nor ſeemed at all moved by them. It ſeemed as " if it had been Goodneſs in him to ſuffer himſelf to be " carreſſed: However, at the End of a Quarter of an Hour, " he ſeemed to be a little animated; and when the Fe- " male, placed in Sight, full over againſt him, had " bruſhed, with her Thighs, the Head of this Inſen- " ſible; and had ſoftly ſet at Play her *Antennæ*; the " Male was determined, at length, to anſwer her Ad- " vances, by ſimular ones, of the ſame Nature. The " Female redoubled her Vivacity, and placed herſelf in " thoſe Poſitions, which agree not very well with the " Idea which has been attempted to be given us of her " Modeſty: It is to make uſe of a weak Term, to ſtile " theſe Poſitions only immodeſt; they approached to " ſomething ſuperior, unknown to us: A Superiority, " which overthrows the general Order of Nature, by " ſubjecting the more noble Species to the other. All " theſe Endearments were by no Means unuſeful to this " paſſionate Queen; her indolent Spouſe became more " active, he was animated more and more. One might " ſee, as I did diſtinctly, that many of thoſe Organs, " which you obſerved within him, when I opened " the Male, appeared without him. The whole Tranſ- " action continued three or four Hours, during which " he found Time for Repoſe, and repeated Acts of " Love. At length the Drone fell into one, which " to the Queen ſeemed to be of too long a Duration. " She was deſirous to draw him from his Lethargy; " ſhe ſeized him, with her Teeth, by the Corcelet; " ſhe cheer'd him a little; ſometimes, in order to re- " freſh him more, ſhe put her Head under his Body;

" but

" but ſo many Marks of her repeated Regard were un-
" uſeful, he was dead.

Clar. " How! what do you ſay?

Eugen. " I ſay he was dead, nor is he the only one
" I have ſeen expire in theſe critical Moments. I fancy
" ſo immediate a Death in ſuch Circumſtances may ap-
" pear to you ſuſpicious, or, at leaſt, an extraordinary
" Event, but the Conſequences were ſo. When I
" knew this little Animal was abſolutely deprived of
" Life, I only thought of conſoling the Widow, and I
" fancied I could no better ſucceed in this, than to pre-
" ſent her another Spouſe young and vigorous.

Clar. " That is to ſay, that you reaſoned on Account
" of this Bee, agreeably to the malicious Principles,
" which Men are poſſeſt of with regard to our Sex.
" Could a Philoſopher of your Caſt have any Taint of
" vulgar Prejudices?

Eugen. " Grant me more Juſtice. I thought of no
" Inference injurious to the Ladies; I was only deſirous
" to treat this Bee like a Brute; but, to my great Aſto-
" niſhment, ſhe behaved like a virtuous Wife. The
" Living did not at all conſole her for the Dead. She
" remained all the reſt of the Day fixed to the Body of
" her unfortunate Spouſe, continued the ſame Cares,
" and loaded him with the ſame Carreſſes, which ſhe had
" conferred during Life. The Widow of *Mauſolus*
" could not better diſcharge her Duty.

Clar. " You begin to intereſt me for this tender Queen.
" I am curious to know her Deſtiny.

Eugen. " You ſhall ſoon be ſatisfied; Night being
" come, I drew from the Glaſs the two Spouſes, the
" Living and the Dead, and ſhut up in their Room an
" hundred common Bees, to keep our Queen warm,
" during the Night. The next Morning, I preſented
" her with a new Husband. I beſtowed likewiſe an-
" other on another Queen, which they had brought me
" to repeat the Experiment. The two Females behav-
" ed in the ſame Manner, in which the firſt had done,
" the Day before, with a Male in perfect Health.

Clar.

Clar. " This ſpoils all. Was then one Night ſuf-
" ficient to cauſe our *Artemiſia* forget her *Mauſolus?*

Eugen. " What is approved among us, let us not
" charge as a Crime to her. We find nothing blameable,
" that a young Widow ſhould admit new Engagements,
" after her Year of Widowhood. One Night with a
" Bee may be equivalent to one of our Years. Time
" ought to be meaſured, according to the Duration of
" Life. An Animal which has but three or four Years
" to live, cannot admit ſo long Interval between two
" Actions as that which has ſixty or ſeventy. Beſides,
" from all you have ſeen, and from all I have told
" you, we have a Right to conclude that, in the Hive
" a Mother Bee acts as that did in the Glaſs; and, con-
" ſequently, that Bees are produced like other Animals,
" and not from Corruption.

Clar. " That appears to me extremely true. But I
" think it no leſs ſtrange, that this Queen ſhould gratify
" the Deſires of her Sex; in a Manner ſo oppoſite to
" natural Order.

Eugen. " This inverſion of Nature ought not to ſur-
" priſe you; it is even neceſſary in this Caſe: For
" when it has been once eſtabliſhed, that a Female ſhould
" cohabite with a thouſand Males, the Conſequence
" ought to be, that theſe Males ſhould be ſleepy, and
" to be awakened only by her; that ſhe ſhould be free
" to chuſe among them all him, whom ſhe would ho-
" nour with her Favours. You'll eaſily conceive what
" Confuſion, what a terrible Situation it would be for a
" Woman, to find herſelf in the Midſt, and at the Mer-
" cy of a Crowd of active, petulant Husbands, who
" would all be Maſters the ſame Moment.

Clar, " You are in the Right; that is eaſily admit-
" ted. The Imagination requires no Aſſiſtance, to pre-
" ſent to itſelf a juſt Image of the Diſorders which
" would reſult from thence.

Eugen. " You now know, *Clariſſa,* how the Mother
" Bee becomes fruitful; you know what puts her in a
" State to people the World with ſo numerous a Poſte-
" rity.

" rity. We ſhall ſee the next Time we meet here, " how ſhe acquits herſelf of this important and labori- " ous Office. "

All I ſhall ſay for myſelf is this: You'll have obſerved I had only ſaid, that the Author of the *Natural Hiſtory* had maintained, *That the Working-bees are of no Sex: Dr.* WARDER *ſays they are Females: What ſhall we believe?* Is not this plain, diſcreet, and modeſt Language? Have I not, in the Manner of Expreſſion, hit upon the Socratic Way of Reaſoning? *Socrates* always inquired, always interrogated, ſays Mr. *Charpentier* and *Byſſhe*, in their Accounts of the Life of that great Man; and if you look into the Works of *Plato* and *Xenophon*, you'll likewiſe obſerve, that they tell you, it was, his, their Maſter's Way. But now, as you ſee what the *Natural Hiſtory* ſays, and as Mr. WARDER uſes theſe Words; *After great Pains taken, and curious Obſervations made, with the Help of the beſt Glaſſes, I muſt come to this certain Concluſion, that all the Working-bees are Females*; I do ſay poſitively, that ſuch Glaſſes, or ſuch Accounts, are not to be believed; for the Aſſertions of both theſe Gentlemen cannot be true, and, I think, I may ſay, That the *Doctor*'s Account of the Working-Bees appears leaſt fabulous, and has leaſt of the Air of a Romance.

The Author of the *Natural Hiſtory* has, I think, himſelf yielded in the Introduction to his Book, that it is ſuch, or was intended to be ſuch. He makes *Clariſſa* ſay, *I want nothing of you but a Romance, but the true Romance of the Hiſtory of Bees;* and *Eugenio* to anſwer, *I will endeavour to ſatisfy you, I will relate nothing but what has been carefully obſerved, and well atteſted: There will enter a good Deal of the Marvelous into my Recital, but nothing of the Falſe.* Did you ever read a Romance, wherein the Author did not endeavour to perſwade you, that he wrote nothing but the Truth? And the more romantic his Performance was, did he not take the more Pains to convince, that his Relations were true? but further,

I leave

I leave it to you, my Reader, to determine, if ſuch a luſcious Dialogue as this betwixt *Eugenio* and *Clariſſa*, painting ſuch Images, and giving ſuch a Tincture to the Imagination, tho' it may be thought genteely wrote, be worth the Value of its Dreſs. I apprehend the Author of it and I have proceeded on different Plans, and that this has occaſioned the Difference in our Way of Writing.

His Deſign ſeems to have been, chiefly, to entertain his Readers with eloquent Expreſſions, to ſwell his Book: For what other Reaſon, to give only another Inſtance or two out of many, would he have filled up ſix or ſeven Pages, with the Deſcription of the Eyes of Bees and other Flies, and telling how many Thouſands each Fly hath? The Butter-Fly no leſs than 34650, and, if I take up his Meaning, each Bee as many. I ſay, for what other Reaſon would he have, in another Place, employed five or ſix Pages more, acquainting us of three Sorts of *nameleſs* Flies, *The firſt whereof*, ſays he, *lays its Eggs in the Brains of a Sheep, in ſpite of the ſnuffing and the perpetual Agitation of the Beaſt in queſtion, by finding an Opportunity of gliding into its Noſtrils, where ſhe gets to the* ſinus frontalis. *The ſecond, in the Throat of Stags, by piercing at once, and without Heſitation, thro' the moſt pitchy Gloom, and ſhaping her Way through all the winding Paſſages, leading from the Entrance of the Noſe to the Root of the Tongue.* And the Third, *in a* Mares anus, *by getting under the Tail and gliding till ſhe reach it:* Here he is very particular. *Probably*, ſays he, *the Inſect at firſt excited only an itching, which prompted the* Mare *to force outward the Border or Edge of its Inteſtine; to open it, and widen its Aperture. Our Fly made a proper Advantage of this Diſpoſition, ſhe advancing further and concealing herſelf in the Foldings of the* Anus. *It was then in all Probability, that ſhe finiſhed her Operation and was enabled to lay her Eggs. Soon after this the* Mare *ſeemed quite diſtracted; ſhe beginning to run, caper and prance, and at laſt threw herſelf on the Ground, and it was a quarter of an Hour*, ſays he, *before ſhe was eaſy, and fell to feeding*

ſeeding again. Beſides, he ſays, *That the Suſtenance, ſuitable to the young they are going to bring forth, is found only in the ſaid Places.*

Is not this fine Language to *Clariſſa*? But paſſing this Conſideration, had he been a Diſciple of the Philoſopher, whom the Oracle pronounced the wiſeſt of all Men, and God gave the *Athenians*, ſays *Plato*, to let them ſee their Faults, he would have taught him to have ſpent his Time on more uſeful Matters. *Xenophon* tells us, *That it was his Cuſtom, ſpeaking of Things natural, to ask*, ſuch as employed their Time upon Inquiries only curious, *if they contented themſelves with bare Knowledge without expecting any Profit? And that he*, Socrates, *employed his own Meditations on what was uſeful.* M. *Charpentier* and *Byſshe* before mentioned ſay, *That he profeſſed not a vain and uſeleſs Science, but rendered himſelf uſeful to his Friends and his Country; that he would have Men ſet Bounds to their Curioſities, and that this Doctrine was conformable to that of* Solomon, *the wiſe Man himſelf, who tells us,* "God has delivered up the World to the Diſpu-
" tations of Men, not being pleaſed that they ſhould
" know the Secrets of his Works." *But that theſe uſeleſs Inquiries agreed very well with the Vanity of thoſe Authors, who being unable to attain to the Knowledge of the Object they propoſed to themſelves, adhered to all the idle Notions their Imaginations preſented them, and gave us their fooliſh Conceits for Reaſons.* Wherefore *Plutarch* ſays, *That* Socrates *having taken Philoſophy out of the Hands of* Pythagoras *and* Empedocles, *who repreſented her full of Chimeras, Fables and Superſtitions, and even playing the downright Fool, brought her to treat of Things with Prudence, and to ſearch for Truth in ſolid and ſubſtantial Arguments; that he left the ſuperfluous to take the neceſſary; and quitted the curious Philoſophy to embrace one that was ſolid and uſeful.* The Author of the Natural Hiſtory's Accounts of the Bee's Eyes, the Queen's Amours, the Flies, and many others in his Book, are, I humbly think, unuſeful. What get we tho' they be

true? Do they contribute to make Honey more plenteous, or to enlarge the Commerce of Wax? But

My Purpoſe was only to inſtruct my Readers, by more and better practical Directions than any Writer on the Subject hath hitherto given, and, I hope, I have not only attained my End, but that my Language will be inoffenſive to the nicer Ear, tho' I have adapted it to the meaneſt Capacity. I have ſtudyied to uſe few Words, (for Brevity is the beſt Help to the Memory) and printed on a ſmall Type, that my Book might be compriſed in a few Sheets, and ſold at a low Price; that ſo the Poor who cannot purchaſe, or the Unlearned who cannot be inſtructed by Books ſwelled with a Redundancy of elegant Expreſſions, may find mine cheap, plain and uſeful to direct them in every Difficulty that can occur: Which I flatter myſelf ſhall make this profitable Husbandry, in the Power of the meaneſt Cottager to practiſe, univerſal over the Kingdom.

FINIS.

THE

CONTENTS.

The FIGURES refer to the SECTIONS, not to the PAGES.

THE Queſtion concerning the Sex of Bees handled, from Section 3 *to* 26

Deſcription of every particular Species of Bees, from 25 *to* 29.

Directions for buying Hives and tranſporting them, from 29 *to* 43.

Directions for conducting the Bee Husbandry through Winter to April, *from* 42 *to* 68, *and through the Month of* April *to the twentieth of* May (*when it may be preſumed, that Hives are paſt Hazard of Famine, the flowering Plants in the Fields being bloſſomed*) *from* 67 *to* 97. *As alſo for feeding the Bees during ſaid Time, from* 73 *to* 88.

Directions concerning the Wars and Robberies of Bees, from 87 *to* 97.

Directions concerning the ſwarming and caſting of Bees, from 96 *to* 169.

Directions concerning the killing of Drones, from 168 *to* 176.

Directions for tranſporting Bees, when they give over Work, from early Soils to Heaths and late Meadows, or carrying them, in the Spring, *from late Soils to earlier ones, and bringing them back when the Flowers are gone, with an Account of the Reaſons for doing ſo, and of the Advantages thereby got, from* 175 *to* 187.

Directions concerning the Hives to be kept and thoſe to be killed, the leſſening of the Entries of thoſe to be kept, the feeding of the laſt, the removing of Eeks and the putting on Winter *Covers, from* 186 *to* 192.

Argu-

Arguments againſt the Way of keeping Bees in Colonies from 191 *to* 204.

The Queſtion, Whether they are young or old Bees which make up young Hives? Anſwered, from 203 *to* 208.

The Queſtion, How long do Bees live? Anſwered, from 207 *to* 213.

The Queſtion, Whether it is beſt to keep an old or an young Hive, and how long an Hive may be kept? Anſwered, from 212 *to* 217.

The Queſtion, What Weather is beſt for Bees? Anſwered, from 216 *to* 220.

The Queſtion, What Fields and Flowers yield moſt and beſt Matter for Honey? Anſwered, from 219 *to* 229.

The Queſtion, To what Diſtance will Bees fly for Food? Anſwered, from 228 *to* 237.

The Queſtion, What Flowers yield beſt Honey? Anſwered, from 236 *to* 248.

The Queſtion, Can a Field be overſtocked with Bees? Anſwered, from 247 *to* 251.

The Queſtion, Will an Hive caſt a Top-Swarm before 'tis full of Bees? Anſwered, from 250 *to* 254.

The Queſtion, What is the Way of Formation and Progreſs of Bees? Anſwered, from 253 *to* 256.

The Queſtion, What is the Uſe of Bee-Bread, and how prepared for that Uſe? Anſwered, from 255 *to* 258.

The Queſtion, What Size of Hives is beſt? Anſwered, from 257 *to* 260.

The Queſtion, In what Time does a Bee come from an Egg to full Maturity? Anſwered, from 259 *to* 262.

The Queſtion, How many Bees may be ſuppoſed to be in an Hive? Anſwered, from 261 *to* 264

The Queſtion, What is the Bee-Bread, and whereof are Combs made? Anſwered, from 263 *to* 281.

The Queſtion, How much Honey will a good Hive gather in a Week of good Weather? Anſwered, from 280 *to* 283.

The Queſtion, Can Bees uſe any other Thing for Food but Honey? Anſwered, from 282 *to* 285.

The

The Queſtion, What Number of Hives may be kept over Year in a Bee-Garden in the Country, and what, by a modeſt Computation, may be reckoned the Product of theſe Hives for a Year? Anſwered, from 284 *to* 290.

Directions concerning the killing of Bees, taking the Honey, and preparing and uſing the Wax, from 289 *to* 302.

Directions for keeping Bees in Colonies or Boxes, without killing them, and for making a Bee-Houſe for that Purpoſe, from 301 *to* 319.

Directions for making Boxes for keeping Bees in the Colony Way, from 318 *to* 343.

Directions how to furniſh the Bee-Houſe with Hives, and how to place them in it, from 342 *to* 348.

Directions for raiſing them upon Boxes, from 347 *to* 352.

Directions how to raiſe the Box, with the Hive upon it, upon another Box, from 351 *to* 357.

Direction to take the Hive from the Box, putting the Bees out of it and home to their Fellows, from 356 *to* 365.

Directions for taking a Box off a lower one, from 364 *to* 367.

Directions how to get Swarms out of Boxes, from 366 *to* 369.

Deſcription of Straw-Hives uſed, inſtead of Boxes, in the Colony-way, from 368 *to* 374.

Mr. Thorley's *Way of getting Honey and Wax without killing Bees, from* 373 *to* 397.

Account by the Author of the Natural Hiſtory, concerning the Manner of taking the Honey and Wax out of the Hives without deſtroying the Bees, from 396 *to* 412.

Two Receipts for making Mead, from 311 *to* 320.

Dr. WARDER's *Opinion of Mead, with* Reflexions *by the Author of this Treatiſe relating thereto, from* 319 *to* 430.

The Appendix, *being a Diſpute concerning the Manner of writing Books deſigned for Inſtruction, not Amuſement, and containing an Account of the Queen Bees Amours. How ſhe behaves to become a Mother,* &c. *from* 116 *to the End.*

INDEX.

INDEX.

The *Figures* refer to the *Sections*, not to the *Pages*.

A.

AGE *of Bees, the Queſtion concerning it handled,* 208. & ſeqq.

B.

Bees are of three Species or Kinds, 4. *Not to be diſturbed in* Winter, 38. *'Tis not improper to do it in the* Spring *if the Weather is warm,* 39. *Dangerous if bad Weather comes,* Ibid. *They ought not to be allowed to go abroad in Time of Snow,* 41. *Cold very hurtful to them,* 43. *Method to prevent it,* 44. & ſeqq. *A certain Degree of Cold favourable to Bees,* 53. *Enemies to Bees,* 56. *Shelter as neceſſary as Sun-ſhine for them,* 65. *Not to to be fed unleſs they are in a famiſhing State,* 80. *Reaſons for it,* 81. & ſeqq. *Directions for feeding them.* 83. & ſeqq. *Bees have a martial Diſpoſition, and rob from one another,* 89. *Directions to know when they are fighting or robbing,* 90. & ſeqq. *How to put an End to their Wars,* 92. & ſeqq. *A Way to know if they are to take Quarters of their own chuſing when they ſwarm.* 119. & ſeqq. *To prevent it,* 124. & ſeqq. *To make them go into the Hive,* 126. & ſeqq. *How to do if they ſettle on any Thing that cannot be brought to the Ground,* 133. *If they ſettle at different Places,* 134. *If they go back to the old Hive.* 135. & ſeqq. *If they divide, and part of them go to the old Hive, and part to the new,* 138. *Directions for tranſporting them, when they have exhauſted one Field, to another unexhauſted,* 176. & ſeqq. *Account of the Advantages ariſing from that Practice,* Ibid. *Directions for feeding Bees,* 189. *Arguments againſt keeping Bees in Boxes,* 196. & ſeqq. *Directions for*

for killing of Bees, 291. *For making Boxes for keeping Bees in the Colony Way*, 319. & ſeqq. *For putting a Box under an Hive*, 349. & ſeqq. *How to raiſe the Box with the Hive on it upon another Box*, 354. & ſeqq. *To take away the Hive from off the Box*, 357. & ſeqq. *To put them Home to their Fellows*, 363. 364. *To take a Box off a lower one*, 365 *and* 366. *Brandy the Occaſion of Perjuries and much Miſchief*, 421. & ſeqq.

C.

Covers for Hives directed, 45 & ſeqq. *Bees lay their Eggs in Cells*, 68. *Covers of Hives not to be removed in* Summer, 101. & ſeqq. *Reaſons for it*, 103. *Signs of caſting*, 104 & ſeqq. *Arguments againſt keeping Bees in Colonies*, 196. *Directions for keeping Bees in Colonies, without killing them*, 303 & ſeqq. *Bees muſt be kept in the Colony Way within an Houſe*, 304. *The Colony Way practiſed with Succeſs*, 369 & ſeqq.

D.

Drones do not ſurvive the Months of Auguſt *or* September, 14. *Profitably killed in* June, 15. *Thought to have Male and Female among themſelves*, 19. *Drones not the Male Bees according to Mr.* Thorley, 22. *Directions for killing of Drones and Reaſons for it*, 169. & ſeqq.

E.

Entry to a Hive ſhould be made ſo little that a Mouſe cannot get in, 54. *Method of leſſening it*, 55. *Entries muſt be enlarged as the Bees grow thronger at Work*, 100. *Directions to do it*, ibid. *Eeks deſcribed, directed, and the Uſes of them ſhown*, 165. & ſeqq. *When and how to take them away, and on what Account*, 168. *Entries of Hives to be kept, ſhould be leſſened when the Bees have given over Work*, 188. *The Time for removing Eeks is when the Bees have given over working*, 190.

F.

Flowers proper for Bees, 67. *What Flowers are hurtful to them*, ibid. *Directions for feeding Bees*, 189.

Foreign

Foreign Liquors bring Diſeaſes and Poverty on us together, 420. & ſeqq.

G.

Gin poiſonous and deſtructive, 421. & ſeqq.

H.

An Hive having loſt its King never encreaſes any more, 16. *The heavieſt fitteſt for keeping*, 30. & ſeqq. *Reaſon why a lighter Hive does ſometimes as well as an heavier*, 32. & ſeqq. *What Hive is heavy enough for keeping*, 34. & ſeqq. *Beſt Size of an Hive*, 35. *Direction for weighing Hives*, 37. *Time for removing them*, 38. *Method of tranſporting them*, 42. *May be tranſported in* April, ibid. *Covers for them directed*, 45. & ſeqq. *Hunger deſtroys many Hives*, 52. *The proper Place to ſet Hives in*, 65. & ſeqq. *What Quantity of Honey to give an Hive at a Time*, 87. *An Hive ſhould be larger than the old one if the Bees ſwarm in* May, *or firſt Week of* June; *if, in the ſecond, of the Size of the old one, and if thereafter it ought to be leſs*, 108 *and* 109. *Reaſons for it*, ibid. *How to put Sticks in Hives*, 110. & ſeqq. *Where and how to ſet Hives*, 140. & ſeqq. *Reaſons for joining them*, 155. & ſeqq. *For putting the ſmalleſt into the biggeſt*, 156. *Method of doing it*, 157 & ſeqq. *Of putting an Hive back to the Hive it came from*, 161. *Reaſons for enlarging Hives and Directions to do it*, 162. & ſeqq. *Weak Hives deſigned to be kept ſhould be fed when the Bees have given over Work*, 189. *Directions for feeding them*, ibid. *Directions for taking and preparing Honey*, 292. & ſeqq. *For making a Bee-Houſe*, 306. & ſeqq. *Manner of ſetting the Hives in the Bee-Houſe when the Colony Way is taken*, 343.

K.

King of the Bees, and Reaſons why their Sovereign is a Male, 8. & ſeqq. *King Bee deſcribed*, 27. *Directions concerning an Hive that has loſt its King*, 88. *The propereſt Time for killing Bees*, 187,

L.

Foreign Liquors bring Diſeaſes and Poverty on us together, 420. & ſeqq.

M.

Mice great Enemies to Bees, 43. *Methods to prevent Damage by them*, 44. & ſeqq. *A Storm in* May *often kills Bees for want of Proviſion*, 72. *Signs of it, and Ways to prevent it*, 75. & ſeqq. *Signs of Caſting*, 97. *In* March *every Hive ſhould be lifted up, and the Board or Stone cleaned*, 141. *Receipts for making Mead*, 414. & ſeqq. *'Tis one of the choiceſt and moſt wholeſome Wines in the World*, 420.

N.

Account by the Author of the Natural Hiſtory of Bees, *of the Manner of taking the Honey and Wax out of Hives without deſtroying Bees*, 398. & ſeqq.

O.

Old bees go off in a Swarm as well as young ones, 205.

P.

Poſſets made of Mead equally good as Canary Poſſets, 418. & ſeqq. *A Patriot deſcribed*, 430.

Q.

The Queſtion, Whether are they young or old Bees, that make up young Hives? Anſwered, 204. & ſeqq. *How long do Bees live? Anſwered*, 208. & ſeqq. *Whether is it beſt to keep an old or a young Hive, and how long may an Hive be kept? Anſwered*, 213. & ſeqq. *What Weather is beſt for Bees? Anſwered*, 217. & ſeqq. *What Fields and Flowers yield moſt and beſt Matter for Honey? Anſwered*, 220. & ſeqq. *To what Diſtance will Bees fly for Food? Anſwered*, 229. & ſeqq. *What Flowers yield moſt Honey? Anſwered*, 237. & ſeqq. *Can a Field be overſtocked with Bees? Anſwered*, 248. & ſeqq. *Will an Hive caſt a Top Swarm before 'tis full of Bees? Anſwered*, 251. & ſeqq. *Which is the Way of Formation and Progreſs of Bees? Anſwered*, 254. & ſeqq. *What is the Uſe of the Bee-bread, and how prepared for that Uſe? Anſwered*, 256. *and* 257. *What Size of Hives is beſt? Anſwered*, 258. *and* 259. *In what Time does a Bee come from an Egg to full Maturity? Anſwered*, 260. *and* 261. *What*

Number of Bees may be ſuppoſed to be in an Hive? Anſwered, 262. *and* 263. *What is the Bee-bread, and whereof are Combs made? Anſwered*, 264. & ſeqq. *How much Honey will a good Hive gather in a Week of good Weather? Anſwered*, 281. *and* 282. *Can Bees uſe any other Thing for* Food *but Honey? Anſwered*, 283. *and* 284. *What Number of Bees may be kept over Year in a Bee-garden in the Country, and what, by a modeſt Computation, may be reckoned the Product of theſe Hives for a Year? Anſwered*, 285. & ſeqq.

S.

Sovereigns, only one permitted to remain in an Hive, 4. *Snail killed by Bees, a curious Account of its Death and Burial*, 58. & ſeqq. *In Storms, Entries to Hives muſt be ſtraitned*, 100. *The Prognoſtic of a ſecond and third Swarm*, 146. & ſeqq. *Swarms, purchaſed, ſhould be brought home the very Day they are ſwarmed, Reaſons for it, and Directions how to do it*, 346. & ſeqq. *Direction how to get Swarms out of Boxes*, 367. *and* 368. *Deſcription of Straw-hives uſed, in the Colony-way, inſtead of Boxes*, 371. & ſeqq.

T.

Mr. Thorley's *Way of getting Honey and Wax without killing Bees*, 374. & ſeqq.

V.

Virgin-honey got in the Colony-way, contrary to Dr. Warder's *Opinion*, 370.

W.

Working-bees Females, according to Dr. Warder, *and of no Sex, according to the* Natural Hiſtory of Bees, 21. *Writers on the Subject of Bees more ſpeculative than practical, which was a Fault, and made their Books of little Uſe*, 29. *Water neceſſary for Bees, and if wanted, they muſt be ſupplied with it*, 66. *Ways of giving it directed*, ibid. *It ſhould be thrown at them to hinder them to go off when they ſwarm*, 116. *Directions for preparing and Whitening of Wax*, 295. & ſeqq.

Y.

A young Hive conſiſts of a Mixture of old and young Bees, 205. & ſeqq.

FINIS.

1 JA 64